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ABSTRACT

The current U.S. nuclear strategy goes beyond the legitimate objective of survivable strategic forces to active preparation for nuclear war. The Reagan administration strategy rejects minimum deterrence and prepares for a nuclear war that might be protracted and controlled. The strategy reflects the understanding that a combination of counterforce targeting, crises location of urban populations, and ballistic missile defense could make nuclear war purposeful and tolerable. The strategy includes five unwarranted assumptions: (1) the Soviets might decide to launch a limited first strike on the United States or its allies; (2) the USSR is more likely to be deterred by the threat of limited U.S. counterforce reprisals than by the threat of overwhelming, total nuclear retaliation; (3) victory is possible in a superpower nuclear war; (4) a counterforce nuclear strategy can be undertaken without compromising the prospects of vertical and horizontal arms control; and (5) peace can be maintained indefinitely via nuclear deterrence. According to the author, Reagan administration strategy must be reversed, and an alternative strategy should be pursued. The United States needs to seek a comprehensive test ban, renounce the first use of nuclear weapons, and institute additional weapon free zones. (Author/NE)

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Nuclear Strategy and World Order: The United States Imperative

LOUIS RENÉ BERES

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Nuclear Strategy and World Order: The United States Imperative

Louis René Beres*

We doctors know a hopeless case, if. . . . listen: There's a hell of a good universe next door; let's go.

E. E. Cummings

Introduction

The principal goal of US nuclear strategy since the beginning of the Atomic Age has been to deter nuclear war. Over the years, however, the policies designed to implement this goal have changed significantly. Today, there is cause for concern that current strategic nuclear policy, as embodied in Presidential Directive 59 and as reflected in the Reagan Administration's strategic program,[1] may actually hasten the arrival of nuclear war. This is the case because such policy creates the impression that the United States is moving toward an eventual first-strike against the Soviet Union.

Current US nuclear strategy goes beyond the legitimate objective of survivable strategic forces to active preparation for nuclear war-fighting. Although US nuclear weapon targeting has been primarily counterforce since 1960, the present administration's rejection of minimum deterrence is coupled with preparations for a nuclear war that might be protracted and controlled. Accepting the position that the function of strategic forces may not be limited to prevention of a nuclear war, President Reagan's nuclear strategy reflects the understanding that a combination of counterforce targeting, crisis relocation of urban populations and ballistic missile defense could make nuclear war purposeful and tolerable. In the words of Leon Sloss, who directed this country's nuclear targeting policy review for the Department of Defense in 1978, "The emphasis has shifted from the *survivability* necessary to assure that we can launch a single preplanned strike

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to the ***endurance*** necessary to actually fight a war that may extend over some period of time and involve a series of nuclear exchanges."[2]

From its very beginning, the Reagan administration has worked to implement this provocative new form of a counterforce nuclear strategy. The main feature of President Reagan's strategic deterrent program, announced on 2 October 1981, was to go ahead with the production and deployment of the MX (missile experimental). Since the announced basing mode chosen for the MX (superhardened existing silos) will have no effect on the much talked about "window of vulnerability," the MX's only remaining purpose will be to fulfill distinctive counterforce mission objectives. The President's parallel plans for ballistic missile defense of the MX, new anti-satellite weapons, continuing expansion of countersilo capabilities with Trident II and MK-12A RV weapons and further identification of intermediate retaliatory options confirm the Reagan administration's commitment to a nuclear war-fighting doctrine. Although the President's four point arms control program, announced on 18 November 1981, was intended to communicate the administration's sincerity in seeking arms control measures, it did nothing to repudiate this commitment.

President Reagan's nuclear strategy represents the latest retreat from the doctrine of "massive retaliation" first defined by John Foster Dulles in January 1954.[3] Designed to fulfill military tasks at a level far exceeding the requirements of "mutual assured destruction,"[4] its counterforce targeting plan envisions a broad array of possible nuclear responses within a carefully defined "spectrum of deterrence." Former Secretary of Defense Harold Brown has stated that,

> deterrence remains, as it has been historically, our fundamental strategic objective. But deterrence must restrain a far wider range of threats than just massive attacks on U.S. cities. We seek to deter any adversary from any course of action that could lead to general nuclear war. Our strategic forces must also deter nuclear attacks on smaller sets of targets in the U.S. or on U.S. military forces, and be a wall against nuclear coercion of, or attack on, our friends and allies. And strategic forces, in conjunction with theater nuclear forces, must contribute to deterrence of conventional aggression as well.[5]

In essence, this counterforce strategy stresses the capacity to employ strategic nuclear forces "selectively." Anticipating intermediate levels of Soviet aggression, it was designed to impress on Soviet leaders the fact that the United States has both the will and the means to make such aggression irrational. It does this by operationalizing an incremental policy of strategic response that will allegedly make Soviet leaders less adventurous.

Former Secretary Brown stated on several occasions that this is not an altogether new strategic posture. P.D. 59 codifies a series of doctrinal modifications that have been underway for at least 25 years. In the Secretary's words,

The U.S. has never had a doctrine based simply and solely on reflexive, massive attacks on Soviet cities. Instead, we have always planned both more selectively (options limiting urban-industrial damage) and more comprehensively (a range of military targets). Previous Administrations, going back well into the 1960s, recognized the inadequacy of a strategic doctrine that would give us too narrow a range of options. The fundamental premises of our countervailing strategy are a natural evolution of the conceptual foundations built over the course of a generation by, for example, Secretaries McNamara and Schlesinger, to name only two of my predecessors who have been most identified with the development of our nuclear doctrine.[6]

The basic shape of the counterforce strategy was outlined by Secretary Brown in his Annual Report to the Congress for FY 1981. There he developed the argument that large-scale countervalue attacks may not be appropriate to deter the full range of potential Soviet threats. Faced with what he saw as a need for deterring Soviet attacks of "less than all-out scale," he proposed options to attack Soviet military and political targets while holding back a significant reserve. Such a strategy, he argued, could preclude an intolerable choice between no effective military response and all-out nuclear war. Instead, we could attack "in a selective and measured way, a range of military, industrial, and political control targets, while retaining an assured destruction capacity in reserve."[7]

Such a strategy may at first appear sound and prudent. Upon close examination, however, it becomes apparent that a policy of calibrating U.S. nuclear retaliation to the particular provocation does not support the overall objective of strategic deterrence. Indeed, careful scrutiny of the policy's underlying principles reveals that it actually encourages nuclear war because it is founded upon an implausible set of assumptions and upon a misunderstanding of interactive effects. These unwarranted assumptions include the notions: 1) that the Soviet Union might decide to launch a limited first strike on the United States or its allies; 2) that the Soviet Union is more likely to be deterred by the threat of limited American counterforce reprisals than by the threat of overwhelming, total nuclear retaliation; 3) that victory is possible in a superpower nuclear war; 4) that a counterforce nuclear strategy can be undertaken without compromising the prospects for vertical and horizontal arms control; and 5) that nuclear deterrence can work forever.

This paper examines each of these assumptions, and then proposes an alternative strategy for improving the likelihood of nuclear disarmament and nuclear war avoidance.

Limited Nuclear War

Perhaps the most curious assumption of current U.S. nuclear strategy is that

the Soviets might decide to launch a limited first-strike on the United States or its allies. Since America's developing counterforce capability is allegedly only for second-strike purposes, its rationale is necessarily based on the belief that a Soviet first-strike might be limited. In the absence of such belief, the commitment to damage-limiting retaliation would make no sense since this country's second-strike strategic forces would be expected to hit only empty silos.

But why would the Soviets ever calculate that they have something to gain by launching a limited first-strike? We have long known that the Soviets do not share our view of controlled nuclear conflict and that there is no reason for them to believe our declared commitment to proportionate retaliation. Faced with great uncertainty about the nature of a U.S. strategic response, Soviet leaders could not possibly make a rational decision to strike first in a limited mode. This is not to suggest that they would necessarily choose rationally to initiate total nuclear war with the United States, but only that once they had decided upon striking first they would be compelled to adopt a strategy of all-out assault rather than one of restraint.

These current U.S. views of nuclear strategy have their roots in the continuing search for a more credible policy of nuclear deterrence, one that would preserve a broad array of nuclear retaliatory options. Since such a policy, as indicated earlier, is founded on the notion of a "spectrum of deterrence," it led almost immediately to some tentative formulations of the idea of "limited nuclear war." Ultimately, many of these formulations found their way into the policies of the "McNamara Strategy" of the 1960s and the successor strategies of James Schlesinger, Donald Rumsfeld, and Harold Brown.

A full eighteen years before Presidential Directive 59, Secretary McNamara, in a speech at the University of Michigan, described a strategy that went beyond the requirements of "minimum deterrence" and that included both counterforce and countervalue retaliatory options. Then as now, the argument was advanced that credible nuclear deterrence mandates a strategy that allows for intermediate levels of military response, a second-strike counterforce strategy. Many elements of this strategy had been articulated several years earlier, in 1957, by Henry Kissinger in his book, *Nuclear Weapons and Foreign Policy*. Confronting what he called "the basic challenge to United States strategy," Kissinger wrote:

> We cannot base all our plans on the assumption that war, if it comes, will inevitably be all-out. We must strive for a strategic doctrine which gives our diplomacy the greatest freedom of action and which addresses itself to the question of whether the nuclear age presents only risks or whether it does not also offer opportunities.[8]

The precise nature of Kissinger's preferred "strategic doctrine" here is preparation for limited nuclear war. While recognizing that the arguments against limited nuclear war are "persuasive," he insisted—in what must now be seen as a bellwether of current policy—that nuclear war need not be

apocalyptic. Consequently, said the future Secretary of State, "Limited nuclear war represents our most effective strategy against nuclear powers or against a major power which is capable of substituting manpower for technology."[9]

These ideas of a limited nuclear war—of a strategy of controlled annihilation—were also widely accepted by James Schlesinger during his tenure as Secretary of Defense. On March 4, 1974, Schlesinger testified before Congress in support of U.S. capability of reacting to a limited nuclear attack with selected counterforce strikes. According to his testimony, such strikes could greatly reduce the chances for escalation into all-out strategic exchanges, thereby producing fewer civilian casualties.

Mr. Schlesinger's strategic doctrine, like that of his doctrinal forbears and successors, left many questions unanswered: What are the probable effects of a limited nuclear war? What sorts of casualties might be expected in the wake of counterforce attacks against military targets envisioned in this plan for flexible response? Would the costs of a limited nuclear war really be "limited," or would they be as overwhelming as the expected consequences of all-out, "spasm" nuclear conflict?

In his 1974 Annual Report as Secretary of Defense, Schlesinger remarked that nuclear attacks against U.S. military installations might result in "relatively few civilian casualties." Subsequently, on 11 September 1974, he told the Subcommittee on Arms Control of the Senate Committee on Foreign Relations that as few as 800,000 casualties could result from an attack on U.S. ICBM silos. This remarkably sanguine view was based on the assumptions of: (1) a Soviet attack on all U.S. Minuteman and Titan ICBMs with one single-megaton warhead targeted on each silo, and (2) extensive civil defense protection.

Since Schlesinger's conclusions generated considerable skepticism among several Senators, the Office of Technology Assessment of the U.S. Congress was asked to evaluate the Department of Defense calculations. In response, the OTA convened an ad hoc panel of experts, chaired by Dr. Jerome Wiesner. The Panel "concluded that the casualties calculated were substantially too low for the attacks in question as a result of a lack of attention to intermediate and long-term effects." The Panel also concluded that the DOD studies "did not adequately reflect the large uncertainties inherent in any attempt to determine the civilian damage which might result from a nuclear attack."[10]

Even more significantly, perhaps, the panel could not determine from DOD testimony any consistent set of hypothetical Soviet objectives in the assumed nuclear strikes. While the panel acknowledged that the Soviets could detonate a small number of nuclear weapons over isolated areas in the United States without producing significant civilian damage, it could not understand how they might possibly benefit from such an attack.

Accordingly, the Ad Hoc Panel on Nuclear Effects insisted that any analysis of proposed changes in U.S. target strategy should be conducted within a larger set of considerations affecting policy in this area. Such considerations, it believed, must include the extent to which new strategies could be executed without escalation to general nuclear war; the effects of nuclear war on deterrence; the degree to which such policy increases or decreases our reliance on nuclear weapons; the extent to which it raises or lowers the threshold of nuclear first-use; and the effect on our allies' perception of the credibility of the U.S. commitment to their security. The panel recommended, therefore, "that the Foreign Relations Committee ask for the additional analysis of casualties outlined in the following section only if it intends to engage in a discussion of these other issues."[11]

Ultimately, the Department of Defense completed new calculations which show that under certain conditions, an attack upon U.S. ICBM silos could result in casualties of between 3 and 22 million as opposed to the 800,000 to 6.7 million previously cited by Schlesinger.[12] Regrettably, however, the discussion of "other issues" called for by the Ad Hoc Panel on Nuclear Effects has yet to take place. As in the case of its doctrinal antecedents, current U.S. strategic policy is premised on an inherently flawed assumption—that is, the military reasonableness of a limited nuclear attack.

Even if such attacks might hold out the "promise" of *relatively* low casualty levels, there is little reason to believe that anything short of an all-out nuclear assault would make military sense to the Soviets. According to Dr. Sidney Drell's testimony before the Senate Subcommittee on Arms Control, in order to carry out a militarily effective attack against U.S. ICBMs, one that would destroy about 800 out of 1,054, or 80 percent, the Soviets would have to unleash an attack which would engender approximately 18.3 million American fatalities. And even so extensive a counterforce assault would not be entirely disabling, since the remaining U.S. ICBMs would still constitute a "healthy robust retaliatory force."[13]

What has been developing over a period of many years in U.S. strategic planning circles, then, is a counterforce doctrine that both understates the effects of limited nuclear war and ignores the primary fact that such a war makes no military sense. Moreover, nothing in our current strategy suggests a plausible connection between nuclear war and politics. Why, exactly, are the Soviets getting ready to "fight and win"[14] a nuclear war with the United States? What conceivable post-war prospect can be associated with alleged Soviet plans for a first-strike against the United States? Why should the Soviets be expected to disregard the Clausewitzian principle that war should always be conducted with a view to sustaining the overriding "political object"?[15]

The dangers of assessing Soviet nuclear intentions *in vacuo* are considerable. By assuming that their Staatspolitik offers no homage to

plausible relationships between nuclear war and national political goals, our own nuclear policy creates a bewildering expectation of first-strike scenarios that in turn produces a staggering array of provocative tactics and deployments. The combined effect of such U.S. strategic thinking is a heightened prospect of escalation and irrevocable collision.

Reflecting Clausewitz's framework for reconciling military strategy with political objectives, Michael Howard, Regius Professor of Modern History at Oxford University, recently raised important questions about this country's penchant for identifying Soviet intentions with capabilities:

> When I read the flood of scenarios in strategic journals about first-strike capabilities, counterforce or countervailing strategies, flexible response, escalation dominance and the rest of the postulates of nuclear theology, I ask myself in bewilderment: this war they are describing, *what is it about?* The defense of Western Europe? Access to the Gulf? The protection of Japan? If so, why is this goal not mentioned, and why is the strategy not related to the progress of the conflict in these regions? But if it is not related to this kind of specific object, what are we talking about? Has not the bulk of American thinking been exactly what Clausewitz described—something that, because it is divorced from any political context, is "pointless and devoid of sense"?[16]

There is, in fact, no clear picture of what the Soviet Union might hope to gain from the kinds of limited counterforce attacks that determine the direction of current U.S. strategic policy. Indeed, everything that we know about Soviet military strategy indicates that it has no place whatsoever for the idea of limited nuclear war. In the Soviet view, all nuclear conflict would necessarily be total.

Once the nuclear firebreak has been crossed, it is most unlikely that conflict could remain limited. Ironically, this point was hinted at by Henry Kissinger, when in 1965 he wrote: "No one knows how governments or people will react to a nuclear explosion under conditions where both sides possess vast arsenals."[17] And it was understood by Robert McNamara, who claimed that once even tactical nuclear weapons were employed, "...you can't keep them limited; you'll destroy everything."[18]

While the prudent course would be to assume that any onset of a nuclear exchange must be avoided lest it become total, current U.S. strategic policy underscores counterforce targeting and its corrolary recognition of limited nuclear warfighting. Although it is clear that once a nuclear exchange has begun it would become impossible to verify yields, sizes, numbers, and types of nuclear weapons employed, current policy reaffirms the notion of limited exchanges conducted in deliberate and controlled fashion. In his Annual Defense Department Report for 1978, former Secretary of Defense Donald Rumsfeld insistently defended the idea that a full-scale strategic response *would be* distinguishable from attacks on military targets, and that counterforce nuclear exchanges between the superpowers need not escalate to all-out attacks on cities. According to Rumsfeld:

In every case considered, both the short-term and the longer-run collateral damage from attacks on a comprehensive list of military targets (including ICBM silos) has been dramatically lower than the fatalities from direct attacks on population targets. It must be emphasized, however, that the results, even in limited and controlled exchanges, could be appalling. They could involve the potential for millions of fatalities, even though the distinction between 10 million and 100 million fatalities is great and worth preserving.[19]

What Rumsfeld failed to consider, however, is that not only would ten million fatalities be outside the normal boundaries of "acceptable damage," but that it is also a figure suggested by a strategic doctrine that is totally alien to the Soviet Union.

A counterforce capability can serve only the nation that strikes first. Used in retaliation, counterforce-targeted warheads would hit only empty silos. Indeed, a second-strike counterforce strategy is simply a contradiction in terms. We should not be surprised, therefore, when Soviet spokesmen continue to characterize America's nuclear strategy as a provocative move toward an eventual U.S. first strike.[20] In their view, this assessment is supported by this country's planned deployment of new medium-range missiles in Western Europe, a plan they say is designed to draw Soviet retaliation away from the United States in the aftermath of the American first-strike.[21]

The Soviet assessment of aggressive U.S. designs is also supported, in their view, by this country's plan to place Soviet civilian and military leaders in jeopardy and by various, overwhelming technological difficulties associated with counterforce doctrines of retaliation. While the essential rationale of a limited and controlled nuclear conflict requires the *preservation* of adversary leadership once a war has begun, America's current nuclear strategy is geared toward destruction of the Soviet ruling elite at the outset. Such a strategy can only contribute to unlimited, uncontrolled nuclear war; indeed, the provocative targeting of Soviet leaders actually increases the likelihood of a Soviet first-strike in the near-term.

Even if there were reason for pursuing a second-strike counterforce strategy, such a strategy is called into question by the absence of appropriate supporting weapons systems. In a letter written in April 1979 to then Secretary of Defense Harold Brown, General Richard H. Ellis, Commander-in-Chief of the Strategic Air Command, indicated that United States strategic nuclear forces were incapable of carrying out a selective counterforce targeting strategy and would be in this handicapped position until 1986.[22] Similar concerns have been expressed by Colin Gray, one of the most ardent supporters of a countervailing American nuclear strategy.[23] For the most part, these reservations about strategic force capabilities needed to support a second-strike counterforce strategy center on the alleged vulnerability of America's silo-housed ICBM force. To reduce such perceived vulnerability during the next few years, the United States may move toward launch-on-warning (sometimes called launch under confirmed attack) targeting poli-

cies.[24] While such policies might help to secure U.S. Titan, Minuteman, and silo-housed MX missiles against surprise attack if adequate information were immediately accessible to our National Command Authorities (the President, the Secretary of Defense, and their duly deputized alternates or successors), they would portend an expanded risk of accidental nuclear war and consequently also of Soviet preemption.

Launch-on-warning policies would also depend upon the successful functioning of the U.S. alert apparatus. Should this apparatus fail to function for any reason, including Soviet preemption, chances are that no decision to launch could be made or implemented in the few minutes available.[25] At this time, the Soviet Union already has operational a high-energy laser weapon capable of destroying U.S. satellites in low earth orbit. According to a recent report in *Aviation Week and Space Technology*, U.S. intelligence analysts believe that the Soviet high-energy laser weapon is capable of damaging subsystems and sensors on U.S. satellites at 100km, and that the Soviets are working on more powerful laser weapons that will be able to damage optical sensors on U.S. early warning and reconnaissance satellites at altitudes up to 40,000 km.[26] Moreover, even if the Soviets were unable to jeopardize the U.S. warning systems, it is virtually certain that their first-strike would entirely disable this country's guidance and communications systems with killer satellites. Since an effective damage-limiting counterforce retaliation at Soviet hard targets would require ultraprecise satellite guidance, this Soviet capability precludes such a retaliation.

Reservations about the strategic force capabilities needed to support a second-strike counterforce strategy also center on the alleged need for weapons that are engineered with a view to neutralize time-sensitive, hardened point targets. But, the search for requisite combinations of accuracy, payload, yield, and responsiveness to create single-shot hard target kill capabilities is seriously misconceived, since it mistakenly presumes that a Soviet first-strike would be executed with substantial forces held in reserve. Since such a search increases Soviet fears of U.S. first-strike, it also heightens the probability of Soviet preemption.

Soviet fears of a U.S. first-strike might also have a self-fulfilling effect. Such fears might occasion their own adoption of launch-on-warning strategies, expanding the risk not only of accidental nuclear war, but also of preemption by the United States. Once again, the synergistic effects of America's current nuclear strategy are at variance with the objectives sought by that strategy. Rather than strengthen nuclear deterrence, the U.S. search for a countervailing strategy will inevitably increase the likelihood of nuclear war with the Soviet Union. This is the case because such a search will inevitably generate an escalatory cycle of move and counter-move with unforeseen interactive effects.

When the superpowers become engaged in the uncertain dynamics of escalation (including both threats and possible armed conflict), they will find themselves in the precarious situation of trying to steer a steady course between the sheer rock of Scylla and the whirlpool of Charybdis. Should one side or the other back down out of fear, the retreat would probably be costly in terms of future global influence and power. Should both sides continue to exploit the presumed advantages of a committal strategy, the resulting escalation could well produce nuclear holocaust.

Herman Kahn has tried to identify some of the apparent dangers that lurk in the hideously complex dynamics of escalation by likening these dynamics to the game of "chicken" as it is played by two drivers on a road with a white line drawn down the middle. According to Kahn:

> Both cars straddle the white line and drive toward each other at top speed. The first driver to lose his nerve and swerve into his own lane is "chicken"—an object of contempt and scorn—and he loses the game. The game is played among teenagers for prestige, for girls, for leadership of a gang, and for safety (i e., to prevent other challenges and confrontations).[27]

But, since the actual processes of escalation are much more complicated than this game, Kahn suggests that "chicken" would present a more accurate analogy if

> it were played with two cars starting an unknown distance apart, traveling toward each other at unknown speeds, and on roads with several forks so that the opposing sides are not certain that they are even on the same road. Both drivers should be giving and receiving threats and promises while they approach each other, and tearful mothers and stern fathers should be lining the sides of the roads urging, respectively, caution and manliness.[28]

The second analogy is hardly more reassuring than the first. Whichever way the game is played, the prospect of ultimate collision is unacceptably high. However much care is exercised, the fact that the game is being played by imperfect and vulnerable human beings underscores an inescapable truth: the process of superpower escalation is the start of a lethal partnership. Ultimately, the partners—and perhaps a substantial number of bystanders as well—must suffer irreversible consequences.

But the game goes on. In the United States our national leaders continue to develop a nuclear strategy based on the prospect of limited nuclear war. Unaware that the interactive effects of such a strategy encourage brinksmanship, these policy-makers, ironically called "realists," are doing their best to hasten the unthinkable.

Improved Nuclear Deterrence

Current U.S. nuclear strategy is also founded on the curious assumption that

the Soviet Union is more likely to be deterred by the threat of limited U.S. counterforce reprisals than by the threat of overwhelming, total nuclear retaliation. Closely related to the assumption that a Soviet first-strike might be limited, this assumption expands the U.S. commitment to limited nuclear war as a plausible strategic option. Anticipating the prospect of limited levels of Soviet aggression, U.S. nuclear strategy, as indicated above, has operationalized a policy of incremental strategic response. Such a policy, says Edward Rowny, a high official in the Reagan Administration's Arms Control and Disarmament Agency, "is a more realistic and effective way to deter the Soviet Union, which has been inexorably building its military capabilities for the last 15 years."[29]

What this idea ignores, however, is the stated Soviet unwillingness to play by U.S. strategic rules. Since the Soviet Union continues to threaten the United States with all-out nuclear war once the nuclear threshold has been crossed, the credibility of the U.S. commitment to selective counterforce strikes must appear very doubtful. Once again, the asymmetry in U.S. and Soviet strategic doctrines on the plausibility of limited nuclear war impairs the credibility of America's nuclear strategy. There is now every reason to believe that the Soviet response to "limited" U.S. counterstrikes would be just as overwhelming as it would be to a massive U.S. countervalue strike. It follows that the alleged flexibility of our nuclear strategy is illusory, offering no deterrence advantages over a strategy of unlimited reprisals.

These flaws in U.S. nuclear strategy are aggravated further by this country's own published doubts concerning controlled nuclear conflict. In the words of Harold Brown:

> In adopting and implementing this policy (the countervailing strategy) we have no more illusions than our predecessors that a nuclear war could be closely and surgically controlled. There are, of course, great uncertainties about what would happen if nuclear weapons were ever again used. These uncertainties, combined with the catastrophic results sure to follow from a maximum escalation of the exchange, are an essential element of deterrence.[30]

This argument is seriously confused. Rather than functioning as "an essential element of deterrence," the uncertainties to which Brown refers undermine the credibility of a U.S. threat to employ a "measured" strategy of annihilation. And their effect is made all the more worrisome by virtue of their open expression. After all, Soviet perceptions of U.S. strategic self-doubt can only reinforce their rejection of graduated nuclear conflict.

Similarly, the uncertainties that would surround the response to any U.S. use of nuclear weapons undermine this country's reliance on theater nuclear forces. In view of the enormously high probability of Soviet nuclear counter-retaliation and the terrible destruction that would be visited upon allies "in order to save them" Soviet strategists cannot possibly accept claims of U.S. willingness to use theater nuclear forces. Indeed, in the aftermath of an

overwhelming Soviet conventional assault against American allies, it could conceivably be more rational for this country's national command authority to by-pass theater nuclear forces altogether, urging instead the immediate resort to a strategic strike.

The credibility of the U.S. threat to use theater nuclear forces on behalf of allies would be further eroded by the still-possible deployment of a new generation of intermediate-range ballistic missiles. Since these missiles, unlike existing theater forces, would pose a major threat to the Soviet homeland, their retaliatory capability would carry a perceptively higher risk of escalation than existing forces. In fact, there is every reason to believe that these weapons would carry the same escalatory risk as strategic nuclear forces.

Although unlikely that he was motivated by an understanding of these deficiencies, President Reagan, on November 18, 1981, proposed cancelling plans to deploy new U.S. intermediate-range missiles in Europe in return for the dismantling of comparable Soviet forces. In setting the stage for the Soviet-American talks on limiting intermediate range weapons begun in Geneva on November 30, 1981, the President announced this country's willingness to forego IRBM deployment in exchange for Soviet elimination of SS-4, SS-5, and SS-20 missiles. Regrettably, the President's offer may have been more an attempt to blunt the antinuclear movement in Western Europe than a realistic starting point for meaningful negotiations. As the Soviets indicated almost immediately, the President's proposal deliberately overlooked United States submarine-based missiles, forward based weapons borne by bombers located in Western Europe or on carriers off Europe, as well as French and British nuclear weapons. Unless the United States displays flexibility in moving beyond its primary proposal, the current talks at Geneva could fail to halt the deployment of new U.S. missiles in Western Europe in 1983 and 1984.

In conducting its negotiations, the United States must keep in mind the probable implications of failure. As in the case of other elements of this country's nuclear strategy, the NATO plan to deploy 572 advanced nuclear-armed missiles (108 Pershing II extended-range battlefield-support ballistic missiles and 464 ground-launched cruise missiles) would undermine deterrence and generate new Soviet incentives to preempt. As the first new U.S. land-based missiles in Europe in two decades that would have the capability of reaching targets in the U.S.S.R., they would offer no revolution in weapons design or operational role. Rather, they would seek to establish a "Euro-strategic" balance by neutralizing the threat of recently-upgraded Russian intermediate-range nuclear weapons.

Yet, there is no deterrence role for the two U.S. missiles that could not be satisfied by existing or improved U.S. strategic systems. For one reason or

another, U.S. thinking on the new intermediate-range forces is governed by the assumption that the Soviets are particularly sensitive to the warhead launching sites, and that they would be less apt to engage in no-holds-barred nuclear war if an attack were launched from European bases. Regrettably, Soviet military doctrine has always regarded such fine U.S. distinctions as artificial and pointless.[31]

From the viewpoint of the Soviet Union, it would make little difference if an attack on its territory were from a U.S.-based ICBM or from a Europe-based Pershing II or ground-launched cruise missiles (GLCM). Nevertheless, U.S. nuclear policy in this area is founded upon the myth that Pershing II and GLCM deployments will create an "escalatory ladder that provides a variety of response options below the strategic level and helps to insure the linkage between lower response options and the strategic nuclear forces."[32] Such deployments are apt to produce not an "escalatory ladder" but *escalation*. As the U.S. Arms Control and Disarmament Agency points out, "the versatility of a mix of long-range theater nuclear systems could cause Soviet leaders to perceive themselves confronted with the potential at some future time for large-scale increase in the U.S. arsenal capable of striking the U.S.S.R.... These perceptions could lead to expanded deployments of Soviet systems such as the SS-20 as a counter to any perceived strengthening of NATO's position vis-a-vis the Warsaw Pact."[33]

A similarly misconceived rationale surrounds the recent U.S. decision to proceed with full production of neutron weapons. While enhanced-radiation weapons would not constitute a threat to the Soviet homeland, and while they would reduce damage, in comparison to existing tactical nuclear weapons, to friendly forces, civilians, and structures,[34] these miniature thermonuclear warheads would not enhance the credibility of this country's nuclear commitment to NATO. This is the case because such weapons would still represent a crossing of the critical "firebreak" between conventional and nuclear weapons. Hence, in view of current Soviet policy to respond to any such crossing with unlimited retaliation, the use of the neutron bomb would carry an intolerably high risk of escalation to strategic nuclear war.

Whether the first nuclear weapons used between NATO and the Warsaw Pact were neutron bombs or tactical forces, escalation to unlimited nuclear war would be very likely. This reality would obtain since any nuclear exchange would lead each side to press ahead with its entire arsenal. To do otherwise amidst the momentum of military operations, fear, anger, and uncertainty would be decidedly irrational. It is most likely his understanding of this fact that led President Carter, on April 7, 1978, to defer (but not discount) production of enhanced radiation weapons. It is the Reagan Administration's misunderstanding of this fact that has occasioned its decision to go ahead with the neutron bomb.

Even demonstrations of automatic reaction for alliance guarantees of nuclear retaliation cannot ensure the perception of willingness to retaliate. No matter how high a value the United States might place on "protection" of various allies (the term "protection" is somewhat ironic here, since execution of the nuclear retaliatory threat would most likely hasten the destruction of the ally to be protected), it can never be as high as the value that it places upon its own security. No matter how often or how vehemently the United States claims that an attack on our NATO allies would be tantamount to an attack on the United States itself, it is apt to be viewed as an incredible claim. Hence, no level of commitment by rational decision-makers which involves a high probability of nuclear counter-retaliation will be seen as irrevocable. While the use of tactical nuclear weapons may not involve any greater destruction than the use of massive conventional firepower, the truly critical threshold or "firebreak" exists between conventional and nuclear weapons (including enhanced-radiation weapons) rather than between different forms of nuclear weapons. This is the case because of the clear and verifiable distinction that exists between nuclear and non-nuclear weapons, and because of the symbolic and psychological implications that accompany nuclear combat in any form. Nuclear weapons *are* different because they are widely *believed* to be different. It is now altogether likely that tactical nuclear retaliation (or, as we have already seen, retaliation with the neutron bomb) would be perceived as the beginning of a genuinely no-holds-barred situation.

President Kennedy certainly understood this when he stated that "inevitably the use of small nuclear armaments will lead to larger and larger nuclear armaments on both sides, until the worldwide holocaust has begun."[35] This view is supported by *The Defense Monitor*, a publication of the highly-regarded Center for Defense Information:

> Once the nuclear threshold has been broken it is highly likely that the nuclear exchanges would escalate. Radio, radar, and other communications would be disrupted or cut. The pressures to destroy the adversary's nuclear force before they land a killing blow would lead to preemptive attacks. In the confusion, subtle peacetime distinctions between lower level tactical nuclear war and higher level tactical nuclear war, and all-out spasm nuclear war would vanish.[36]

In spite of this argument, American NATO policy continues to emphasize the special role of theater nuclear forces as a deterrent to conventional as well as theater nuclear attacks. What is most peculiar about this emphasis is that it is coupled with the understanding that operational Soviet military doctrine does not subscribe to a strategy of graduated nuclear response and that the limited use of nuclear weapons is fraught with the danger of escalation. With such an understanding, it is difficult to believe that the United States would actually be willing to make good on its theater nuclear commitments to NATO allies, and thus these commitments begin to lose their deterrent value.

This difficulty is underscored by the effects that theater nuclear forces

would have on the countries being protected. A recent study by the Center for Defense Information reveals that the use of only 10 percent of the roughly 7000 tactical nuclear weapons which the United States maintains in Europe would destroy the entire area where these exchanges took place.[37] This situation would not be altered by deployment of the neutron bomb, since—as we have already noted—the expected Warsaw Pact counter-retaliation would be devastating and unlimited.

The argument that current nuclear strategy enhances deterrence has been cast in terms of an illusory "spectrum of deterrence" that would offer the president a set of flexible options in crisis situations. It is now being suggested in certain quarters[38] that this flexibility can be made more effective by emphasizing the U.S. capacity and willingness for nuclear warfighting. As expressed by former Secretary of Defense Brown:

> In our analysis and planning, we are necessarily giving greater attention to how a nuclear war would actually be fought by both sides if deterrence fails. There is no contradiction between this focus on how a war would be fought and what its results would be, *and* our purpose of insuring continued peace through mutual deterrence. Indeed, this focus helps us achieve deterrence and peace, by ensuring that our ability to retaliate is fully credible.[39]

In this context, Brown's meaning was unambiguous. An "ability to retaliate [that] is fully credible" is an ability to fight a nuclear war. And the need to acquire such an ability is based on the premise that the Soviet Union is preparing to fight and win a nuclear war. Ironically, this premise is at odds with another assumption of current U.S. nuclear strategy—that the Soviets might launch a limited nuclear first-strike and subsequently cooperate in a limited nuclear war with the United States.

Leaving aside these contradictory assumptions, the alleged linkage between nuclear warfighting capacity and credible deterrence is inherently ill-founded. This is the case because the Soviet Union is no more likely to be deterred by the prospect of losing a nuclear war than by the prospect of absorbing overwhelmingly destructive nuclear retaliation.[40] In assessing the anticipated effects of alternative courses of action, Soviet leaders would have no reason to calculate that the absorption of a U.S. nuclear reprisal would fall within "acceptable" levels. In view of the prevailing meaning of rationality among states, such a calculation could be made only in the urgent expectation of a U.S. first-strike. And such an expectation is nurtured rather than reduced by the U.S. search for improved nuclear deterrence through a nuclear warfighting capacity.

As with certain other aspects of current U.S. nuclear strategy, the emphasis on creating a nuclear warfighting potential is entirely counterproductive to this country's security. Such an emphasis goes well beyond the reasonable requirements of an assured destruction capability to a provocative demonstration of first-strike intentions. Whether or not such intentions are

genuine (and I seriously doubt that they are), all that matters are Soviet *perceptions*. The logic of deterrence requires a demonstrated willingness and capacity to deliver an unacceptably damaging retaliation after absorbing a first-strike, but where such demonstrations are supplanted by bellicose counterforce posturing, incentives are created for a rational adversary to preempt.

This is perhaps the central flaw in current U.S. nuclear strategy. Virtually all of the essential elements of this strategy occasion doubts among Soviet leaders about this country's alleged rejection of a nuclear first-strike. Rather than reinforce U.S. security by projecting the image of survivable nuclear forces that we are prepared to use in retaliation, this strategy undermines U.S. security by fostering the impression of first-strike inclinations. By encouraging a climate of strategic interaction in which the Soviet Union must exist in a continual and increasing expectation of imminent attack, the United States compels its adversary to take steps to strike first itself. Naturally, these steps are perceived as aggressive in turn, and in "reaction" to apparent Soviet designs, an unstoppable cycle of move and countermove is initiated. The net effect, of course, is insecurity for all concerned.

Ironically, therefore, current U.S. nuclear strategy increases rather than reduces the likelihood of nuclear war with the Soviet Union. Even if the Soviets would prefer a condition of protracted enmity with the United States to a superpower nuclear war, the expectation of a U.S. first-strike will encourage them to strike first themselves. This is the case because they recognize the damage-limiting benefits that would accrue to the country that strikes first. Of course, they would anticipate extraordinary levels of destruction for themselves, and would prefer non-war to relative strategic advantage *if they had the choice*. But faced with a situation that is perceived to omit peace as an option, they would be compelled to choose preemption as the rational course.

It follows from this analysis that U.S. nuclear strategy is seriously flawed in creating the impression of preferring relative victory to non-war. Even if this impression is erroneous, all that matters is that it is perceived as genuine in Soviet strategic calculations. Regrettably, everything about current U.S. nuclear strategy encourages such a perception. To reverse such a dangerous perception while there is still time, this strategy must seek to communicate a different set of expectations to the Soviet Union, one that clarifies this country's distinct preference for non-war over any conceivable outcome of nuclear conflict. With such clarification the Soviet Union would be less inclined to calculate that rationality requires preemption, and the United States would be in a position to progressively implement parallel processes of *de-escalation*.[41]

To give meaningful content to such clarification, the United States should

give immediate attention to various offensive qualities of the MX missile. Not only will the newly-announced MX basing mode fail to reduce the widely-alleged vulnerability of the ICBM leg of the triad, the MX's preemptive attack qualities will also detract from stable deterrence. Designed to deliver its enormously destructive load within 100 meters of target, the MX seeks to fulfill a destabilizing U.S. search for a high single-shot kill probability against hard targets (silos, submarine pens, nuclear storage sites, and command bunkers).

Supporters of the MX counterforce targeting qualities argue that there is no reason to make such Soviet targets safe from U.S. ICBMs when comparable targets in this country are at risk from Soviet ICBMs. But this argument is based entirely on the confusion of survivability and targeting objectives, and substitutes "monkey-see-monkey-do" logic for a well-reasoned de-escalation of strategic competition. Indeed, considered together with the U.S. failure to ratify SALT II, its continuing failure to seek strategic arms control with the Soviet Union, its continuing reliance on a policy of nuclear first-use, its program to modernize long-range theater nuclear forces, and its renewed commitments to ballistic missile defense (BMD) and civil defense, the MX's potential for placing Soviet strategic forces in jeopardy naturally provides the Soviet Union with a greater incentive to strike first.

The destabilizing aspects of the MX are paralleled by other U.S. strategic force developments. The Trident II missile and warhead programs are designed to provide U.S. countersilo capabilities that could put a large portion of Soviet fixed ICBMs at risk. Although Trident II's potential hard-target kill capabilities are intended to provide a hedge against catastrophic failure of the other legs of the triad, it will almost certainly stimulate the Soviets to increase the number of attacking reentry vehicles (RV's). Similarly, the MK12A reentry vehicle is now being acquired to replace the MK-12 RV on 300 of the 550 Minuteman III missiles currently deployed. Since the essential rationale of this planned deployment is to expand the ICBM force's counterforce capability, the MK-12A RV will also heighten Soviet fears of U.S. preemption.[42]

Moreover, what is our purpose in placing Soviet military and civilian leaders in particular jeopardy? Is it, as one strategic analyst suggested recently, "to destroy the ability of the Soviet leadership to continue to exercise political control over its domestic and 'colonial' territory—either by killing the leadership itself, making it impossible for the leadership to communicate with its subordinates, or destroying the means (people and facilities) by which the leadership's orders are carried out"?[43] If this *is* the purpose, then it is clearly contrary to the essential rationale of a countervailing nuclear strategy: that is, preserving the prospects for limited, controlled nuclear conflict. Indeed, in view of this country's current inability

to support its countervailing strategy with advanced weapons systems,[44] the enhanced targeting of Soviet leaders actually increases the likelihood of a Soviet first-strike in the near term.

But what about the Soviets? Aren't *their* current deployments and capabilities provocative and destabilizing? Aren't *they* continuing to strive for nuclear superiority that is oriented toward a "win the war" potential and that is augmented by a far-reaching civil defense effort? Haven't they been developing precision guidance for their heavy MIRVED ICBMs, the SS-18 and SS-19, with a view to threatening the survival of U.S. ICBM forces?

The evidence is hardly encouraging. The steady growth of Soviet military power has fostered legitimate questions over Soviet strategic objectives. It may even be true, as the so-called "Team B" appraisal of five years ago concluded, that Moscow's buildup stems from patently aggressive designs. But it is *not* true, even if our "worst case" assumptions are correct, that U.S. security is best served by acting in an equally provocative or more provocative manner.

In developing a long-term defense program vis-a-vis the Soviet Union, the Reagan Administration should be guided exclusively by a careful comparison of the costs and benefits of alternative courses of action. Such a comparison must take careful note of expected Soviet reactions to U.S. military developments and of the long-range *cumulative effects* of these developments. It will make precious little sense, for example, to substantially increase funding for BMD research and development since the Soviets can be expected to offset the ICBM survivability benefits with a refined offensive strategic capability.

Until measures are found to replace deterrence with a saner security system, improving the survivability of the U.S. strategic triad must continue to be an overriding goal of this country's defense posture. But it is altogether clear that this goal will not be served by the planned MX system and its associated counterforce weapons systems and doctrines. Again, Soviet countermoves must be anticipated, especially if SALT is abandoned. It is likely that the search for hard target kill capacity will do more to undermine deterrence than to provide safety. That the Soviets are already engaged in such a search in no way suggests the rationality of U.S. imitation.

A similar argument must be made concerning renewed U.S. interest in civil defense. In what is likely to become the *reductio ad absurdum* of U.S. mimicry, the Reagan Administration has begun to call for funding to implement a "Crisis Relocation Plan." Were it to be subjected to careful scrutiny in terms of expected costs and benefits, CRP would be revealed as immensely impractical and needlessly provocative. Even if it were assumed that large-scale U.S. civilian evacuation plans were workable, and that a government-directed civilian exodus several days before a nuclear war would

not degenerate into chaos, a Soviet nuclear attack could still doom virtually every American. According to Irwin Redlener, M.D., who has studied CRP for Physicians for Social Responsibility, civil defense calculations by U.S. authorities are "based on little hard data." Ignoring the many important differences that exist between a city being evacuated in the face of a hurricane and one being flattened by a nuclear bomb, says Dr. Redlener, CRP rests on highly questionable analogies rather than upon well-reasoned analysis. Furthermore, Redlener notes that "CRP makes the basic assumption that a warning time of one week is essential to effect any reasonable degree of evacuation and protection. This discounts any possibility of a surprise attack. The elimination of a presumptive attack scenario makes little sense even to traditional military planners."[45]

Moreover rather than strengthening deterrence by demonstrating this country's war preparedness (a demonstration that the Soviets seem no longer to need), plans for crisis relocation would underscore Soviet fears of a U.S. first strike. As Dr. Redlener points out, "evacuating U.S. counterforce and other target sites carries the distinct possibility of provoking the war it claims it will protect us from. How would an adversary interpret such an evacuation? Could this mean the U.S. was preparing to deploy its first strike weapons? If so, would not the Soviets feel the need to strike first? Such considerations are logical, lethal, and apparently disregarded by current civil defense planners."[46]

Victory Is Possible

The third major assumption of current U.S. nuclear strategy is that victory is possible in a superpower nuclear war. Closely related to the other flawed assumptions concerning limited nuclear war and improved nuclear deterrence, this assumption makes nuclear war more likely by creating the impression that such a war might be profitably sustained. Contrary to all of the recent findings of the medical and scientific communities,[47] this assumption rejects the informed understanding that nuclear war would be uniquely and unavoidably catastrophic. According to Colin Gray and Keith Payne, "Recognition that war at any level can be won or lost, and that the distinction between winning and losing would not be trivial, is essential for intelligent defense planning. . . . If American nuclear power is to support U.S. foreign policy objectives, the United States must possess the ability to wage nuclear war rationally."[48]

Nuclear war, we are told, can be waged "rationally." Hence, the United States is urged to achieve strategic superiority—the "ability to wage a nuclear

war at any level of violence with a reasonable prospect of defeating the Soviet Union and of recovering sufficiently to insure a satisfactory postwar world order."[49] And in a burst of uninformed optimism, these two strategic planners tell us: "A combination of counterforce offensive targeting, civil defense, and ballistic missile and air defense should hold U.S. casualties down to a level compatible with national survival and recovery."[50]

In considering these suggestions, one must ask whether these armchair strategists have even taken the trouble to look at the available scientific literature on nuclear war. If they *have*, how can they explain their own sweeping dissent? If they haven't, perhaps they should take a moment to pause and reflect upon an open letter to former President Carter and Chairman Brezhnev from a respected organization of 1600 physicians, Physicians For Social Responsibility:

As physicians, scientists, and concerned citizens, alarmed by an international political climate that increasingly presents nuclear war as a "rational" possibility, we are impelled to renew a warning, based on medical and scientific analyses, that:

1. Nuclear war, even a "limited" one, would result in death, injury and disease on a scale that has no precedent in the history of human existence;

2. Medical "disaster planning" for a nuclear war is meaningless. There is no possible effective medical response. Most hospitals would be destroyed, most medical personnel dead or injured, most supplies unavailable. Most "survivors" would die;

3. There is no effective civil defense. The blast, thermal and radiation effects would kill even those in shelters, and the fallout would reach those who had been evacuated;

4. Recovery from nuclear war would be impossible. The economic, ecologic, and social fabric on which human life depends would be destroyed in the U.S., the U.S.S.R., and much of the rest of the world;

5. In sum, there can be no winners in a nuclear war. Worldwide fallout would contaminate much of the globe for generations and atmospheric effects would severely damage all living things.[51]

For anyone who has known or studied the effects of the atomic bombings of Hiroshima and Nagasaki, it is clear that a superpower nuclear war would bring not only death, but incoherence. In the words of Robert Jay Lifton: "The ultimate threat posed by nuclear weapons is not only death, but meaninglessness: an unknown death by an unimaginable weapon. War with such weapons is no longer heroic; death from such weapons is without valor."[52] Such meaninglessness would be accentuated by the impairment of symbolic immortality, a process by which human beings ordinarily feel that they can "live on" through their posterity. Since the occasion of superpower nuclear war would represent an assault on the very idea of posterity for millions of people, death would take place without rebirth, and the continuity of life would give way to authentic feelings of disintegration, separation, and stasis.

In one of the earliest authoritative treatments of the consequences of nuclear war, biologist Tom Stonier asked the question, "What would happen

if a 20 megaton thermonuclear weapon were exploded on New York City"? His answer is summarized as follows:

As mass fires raze the destroyed city below, fallout begins to descend from above, poisoning the surrounding countryside. One bomb might endanger the lives of people in a 4000 square-mile area. Such a large thermonuclear device exploded in mid-town Manhattan, for example, would probably kill 6,000,000 out of New York City's 8,000,000 inhabitants, and produce an additional 1,000,000 or more deaths beyond the city limits.[53]

Should we expand our concern to the probable effects of a full scale nuclear attack on the nation as a whole, Dr. Stonier forecasts the following scenario:

Even before the threat of fallout radiation completely subsided the country could be thrown into a state of economic and social chaos—including serious outbreaks of famine and disease—and the ensuing shock, loss of morale, and weakened leadership would further hamper relief operations and impede rehabilitation. The effects of this disruption could persist for decades, just as would the somatic damage inflicted on people exposed to radiation. Even individuals who escape the hazards of the explosion and who are themselves uninjured by radiation might carry a legacy of genetic damage, which they would then pass from generation to generation. Perhaps most uncertain, and potentially most disastrous, are the ecological consequences, the imbalances in nature itself, which might well create the preconditions for the disappearance of American civilization as we know it.[54]

More recently, Dr. Howard Hiatt, Dean of the Harvard School of Public Health, testified before the Senate Subcommittee on Health and Scientific Research on the devastating consequences of a nuclear attack on Washington, D.C.[55] Dr. Hiatt's statement provides graphic and authoritative testimony of the catastrophe that would result from the detonation of just a single one-megaton air burst bomb above the White House.

The area of total destruction, the circle within which even the most heavily reinforced concrete structures do not survive, has a radius of 1.5 miles. That circle includes within it virtually every major monument, the heart of the city's subway system, and indeed, this very room. And within this circle, too, almost all of the population is killed.

At a distance of 3 miles from the White House, past the Arlington National Cemetery, concrete buildings are destroyed. The heat from the explosion and the spontaneous ignition of clothing cause third-degree flash burns over much of the body, killing most people in this area.

More than 4 miles from the center, brick and wood frame buildings are destroyed and fires caused by the intense heat are fanned by 160-miles per hour winds.

In a circle extending to Takoma Park, Hyattsville, and Suitland, brick and wood frame buildings sustain heavy damage. The heat exceeds 12 calories per square centimeter and all individuals with exposed skin suffer severe third-degree burns.

Nearly nine miles from the center, in McLean, Alexandria, and Bethesda, including the Walter Reed and Bethesda Naval Hospitals, brick and wood frame structures sustain moderate damage.

Miles beyond this last ring, people suffer second-degree burns on all exposed skin and additional burns from flammable clothing and environmental materials. Retinal burns resulting from looking at the fireball cause blindness. As high winds spread the fires caused by the initial blast and thermal radiation, the number of casualties grows.

If we assume a population for the metropolitan area of 2.5 million, one-quarter of the inhabitants—more than 600,000—are killed. Even more— 800,000—are injured. Many of these

survivors are badly burned, blinded, and otherwise seriously wounded. Many are disoriented. These are the short-term effects; the problem of radiation sickness, including intractable nausea, vomiting, bleeding, hair loss, severe infection, and often death, will grow in the days and weeks ahead and fallout from the bomb will spread well beyond the area of impact.

The population is devastated; many survivors are in need of immediate medical care, food, shelter, clothing and water. The communities in which they have lived have, in many cases, virtually ceased to exist as physical entities—and as social entities as well. Government is barely existent. The transportation system, including many roads, has been destroyed. Remaining food, water, and medical supplies are dangerously inadequate.

Further, Dr. Hiatt notes that:

With a decimated professional community, physical facilities largely in ruins, and a complete disruption of communications, the task of treating the wounded will be hopeless....

While the Massachusetts General Hospital has 15 beds for the acute care of such burn victims, "just to keep one such patient alive taxes us," Dr. John Burke, the director of the Burn Unit, told me.

Indeed, keeping the one patient alive is a triumph of modern medicine. But it requires the extraordinary resources of one of the world's major medical centers. No amount of preparation could provide the human and physical resources required for the care of even a few such patients hospitalized simultaneously in any city of the nation. Yet one must assume that at least tens of thousands of such casualties would result in every metropolitan center hit by a nuclear weapon.

This is but one reason that it is futile to suggest a meaningful rapid medical response to the overwhelming health problems that would follow a nuclear attack. Further, only the most limited medical measures can be visualized to deal with the burden of cancer and genetic defects that would afflict survivors and future generations. With respect to temporary evacuation, radioactivity would make the blast area uninhabitable for months. Most of the area's water supply, sanitation resources and transportation and industrial capacity would be destroyed.

Such expert testimony builds upon the systematically-gathered insights of a 1975 study, entitled *Long-Term Worldwide Effects of Multiple Nuclear-Weapons Detonations*, which was prepared by a special committee of the National Research Council, National Academy of Sciences. As Dr. Philip Handler, President of the National Academy of Sciences, writes, "No report can portray the enormity, the utter horror" that would result from a hypothetical exchange involving the detonation of just one half of all nuclear weapons in current strategic arsenals.[56] Nor does, as Handler notes, the NAS Report so attempt.

What the report does attempt to portray are the long-term, worldwide effects following the exchange of 10,000 megatons of explosive power in the northern hemisphere, in a plausible mix of low- and high-yield weapons, and at a variety of altitudes of detonation. Merely acknowledging the "unimaginable holocaust" that would occur in the primarily afflicted nations, the report confines its attention to possible long-term effects on more distant populations and ecosystems, with special reference to the atmosphere and climate, natural terrestrial ecosystems, agriculture and animal husbandry, the aquatic environment, and both somatic and genetic effects upon humans.[57]

Although the report concludes that the biosphere and the species, *Homo sapiens*, would survive the hypothetical strategic exchange,[58] it recognizes that humankind's civilization might not. This conclusion has nothing to do with the probable social, political, or economic consequences of the hypothesized nuclear exchange (the report deliberately does not address these consequences, which it characterizes as "entirely unpredictable" effects of "worldwide terror"), but only with the interrelated physical and biological aspects of this calamity. These aspects are found to include possible temperature changes in either direction and of different magnitudes; possible major global climatic changes; contamination of foods by radionuclides; possible worldwide disease epidemics in crops and domesticated animals because of ionizing radiation; possible shortening of the length of growing seasons in certain areas; possible irreversible injury to sensitive aquatic species; possible long-term carcinogenesis due to inhalation of plutonium particles; some radiation-induced developmental anomalies in persons *in utero* at the time of detonations; possible increase in skin cancer incidence of about 10 percent, which could increase by as much as a factor of 3 if the ozone depletion were to rise from 50 to 70 percent; severe sunburn in temperate zones and snow blindness in northern regions in the short-term; and an increased incidence of genetic disease that would not be limited to the offspring of the exposed generation, but would extend over many generations.

Of course, accurate prediction of the worldwide consequences of all-out nuclear war between the superpowers is fraught with uncertainty. With this in mind, the participants in the six separate committees who produced the NAS report caution their readers about the limitations of the data upon which their conclusions rest. It is possible that the devastating effects expected by the NAS scholars might be only the "tip of the iceberg," that other—perhaps even more significant effects—would accompany the hypothesized exchange. This is underscored by the fact that the magnitude of the war postulated in *Long-Term Worldwide Effects of Multiple Nuclear Weapons Detonations* may be much too low. Were the superpowers to exchange between 50,000 and 100,000 megatons of nuclear explosives, rather than the 10,000 megatons assumed by the report, global climatological changes would imperil the very survival of humankind.

There is a second reason for recognizing that the predicted effects of nuclear war between the superpowers are uncertain. This reason lies in interactions between individual effects. While a good deal is already known about the separate effects of a nuclear exchange, we cannot rule out that the interactions among these effects would be utterly unexpected and deadly. To fully understand the effects of a nuclear war between the superpowers, we must go beyond the usual separate examinations of the consequences of

blast, nuclear radiation and thermal radiation to a full consideration of the possible synergy among these consequences.

The U.S. Arms Control and Disarmament Agency report, *Worldwide Effects of Nuclear War. . . . Some Perspectives*, provides a skillful summary of this point:

> In attempting to project the after-effects of a major nuclear war, we have considered separately the various kinds of damage that could occur. It is also quite possible, however, that interactions might take place among these effects, so that one type of damage would couple with another to produce new and unexpected hazards. For example, we can assess individually the consequences of heavy worldwide radiation fallout and increased solar ultraviolet, but we do not know whether the two acting together might significantly increase human, animal, or plant susceptibility to disease. We can conclude that massive dust injection into the stratosphere, even greater in scale than Krakatoa, is unlikely by itself to produce significant climatic and environmental change, but we cannot rule out interactions with other phenomena, such as ozone depletion, which might produce utterly unexpected results. We have come to realize that nuclear weapons can be as unpredictable as they are deadly in their effects. Despite some 30 years of development and study, there is still much that we do not know. This is particularly true when we consider the global effects of a large-scale nuclear war.[59]

In May 1979, the Office of Technology Assessment of the U.S. Congress released its study, *The Effects of Nuclear War*,[60] which examines the effects of nuclear war on the populations and economies of the United States and the Soviet Union. This study explores the full range of effects that nuclear war would have on civilians, including those resulting from blast and radiation as well as indirect consequences from social, economic, and political disruption. Two of the study's major findings are that conditions would worsen over time after a nuclear war "ended" and that the effects of nuclear war that cannot be calculated in advance are at least as significant as those that can be calculated in advance. According to the introduction to the Executive Summary of the study:

> Nuclear war is not a comfortable subject. Throughout all the variations, possibilities, and uncertainties that this study describes, one theme is constant—a nuclear war would be a catastrophe. A militarily plausible nuclear attack, even "limited," could be expected to kill people and to inflict economic damage on a scale unprecedented in American experience; a large-scale nuclear exchange would be a calamity unprecedented in human history. The mind recoils from the effort to forsee the details of such a calamity, and from the careful explanation of the unavoidable uncertainties as to whether people would die from blast damage, from fallout radiation, or from starvation during the following winter.[61]

Building upon some of the work found in these earlier studies, Kevin N. Lewis, in an article entitled "The Prompt and Delayed Effects of Nuclear War," further underscores the conclusion that "nuclear war remains an unmitigated mutual disaster, and that no conceivable civil-defense preparations could materially change the prospect."[62] Challenging the view that both of the superpowers need to be concerned about the integrity of their strategic retaliatory capabilities, Lewis demonstrates that all-out war remains

a losing proposition for both sides. In this connection, his conclusion is worth noting:

> In sum the cumulative effects of an all-out nuclear war would be so catastrophic that they render any notion of "victory" meaningless. The formal methodologies of the assured-destruction scenarios do not reveal the full extent of these effects. Moreover, arguments that throw doubt on the sufficiency of the deterrent capability of the U.S. exclude some of the most profound and long-lasting of these effects. When the delayed effects of all-out war are taken into consideration, it should become clear that no countermeasure would significantly lessen the degree of devastation that would surely occur. Even if a highly efficient program for the evacuation of cities could substantially reduce prompt fatalities, it could not prevent the delayed social consequences of industrial and economic devastation. The magnitude of either the prompt disaster or the delayed one would be so great that neither disaster could ever be considered tolerable.[63]

The idea that the concept of "victory" has no place in a nuclear war is as old as the Atomic Age. In one of the first major theoretical treatments of the subject of nuclear war, Bernard Brodie wrote:

> The first and most vital step in any American security program for the age of atomic bombs is to take measures to guarantee to ourselves in case of attack the possibility of retaliation in kind. The writer in making this statement is not for the moment concerned about who will *win* the next war in which atomic bombs have been used. Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have no other useful purpose.[64]

Even long before the Atomic Age, philosophers and military strategists probed the idea of victory with reasoned sensitivity. Machiavelli, for example, recognized the principle of an "economy of violence"[65] which distinguishes between creativity and destruction: "For it is the man who uses violence to spoil things, not the man who uses it to mend them, that is blameworthy."[66] With respect to war, Machiavelli counseled that victory need not be in the best interests of the prince, and that it might even produce an overall weakening of a state's position in international affairs.[67]

Unlike proponents of the "victory is possible" school, Machiavelli understood the difference between violence and power. More recently, Hannah Arendt has reflected on this distinction, elucidating a situation wherein the technical development of the implements of violence has now outstripped any rational justifications for their use in armed conflict. Hence, war is no longer the *ultima ratio* in world politics, the merciless final arbiter in international disputes, but rather an apocalyptic chess game that bears no resemblance to earlier games of power and domination. In such a game, if either "wins" both lose.[68]

Hannah Arendt's speculations on violence and power raise still another problem with the idea of "victory" in a nuclear war. This is the problem of arbitrariness or unpredictability intrinsic to all violence. Contrary to the anesthetized expectations of strategic thinkers who anticipate near-perfect

symmetry between human behavior and their own rarified strategic plans, violence harbors within itself an ineradicable element of the unexpected:

> . . . . nowhere does Fortuna, good or ill luck, play a more fateful role in human affairs than on the battlefield, and this intrusion of the utterly unexpected does not disappear when people call it a "random event" and find it scientifically suspect; nor can it be eliminated by simulations, scenarios, game theories, and the like. There is no certainty in these matters, not even an ultimate certainty of mutual destruction under certain calculated circumstances. The very fact that those engaged in the perfection of the means of destruction have finally reached a level of technical development where their aim, namely warfare, is on the point of disappearing altogether by virtue of the means of its disposal is like an ironical reminder of this all-pervading unpredictability, which we encounter the moment we approach the realm of violence.[69]

In this connection, Arendt's concern for the uncertainties of violence stands in marked opposition to the ranks of all passionate systematizers who deny the essential irregularity of battlefield activity. In the fashion of modern historians who seek "laws" to explain and predict the vagaries of human conduct on a global scale, the strategic mythmakers transform imperfect mosaics of military behavior into a structured "logic of events." Entangled in false assumptions and ignored interactions, the proponents of victory display a singular failure to understand the non-rational springs of action and feeling, and an unreasonable degree of faith in game-theoretic systems of rational explanation. If only these strategic mythmakers could learn to appreciate how little humankind can control amidst the disorderly multitude of factors involved in war. If only they could learn to understand what presumptuous hazards are associated with a strategy that seeks to impose order on what must inevitably be a heightened form of chaos.

Rejecting the strategic mythmakers, students of world affairs must learn to disassociate the idea of "victory" from considerations of nuclear war. Even Clausewitz understood that war must be conducted with a view to post-war benefit and that the principle of "utmost force" must always be qualified by reference to "the political object." This view is seconded even by Henry Kissinger: "In the nuclear age, victory has lost its traditional significance. The outbreak of war is increasingly considered the worst catastrophe. Henceforth, the adequacy of any military establishment will be tested by its ability to preserve the peace."[70]

For this country's nuclear strategy to contribute effectively to the avoidance of nuclear war, it will have to emphasize that victory is not possible. Facing up to the Gorgon Head of nuclear war is essential to nuclear war avoidance. Rather than turning us into stone, an unflinching look at what is still "unthinkable" can reverse the encroachment of worldwide atomic catastrophe. Just as repression of the fear of death by individuals can occasion activities that impair the forces of self-preservation, so can this country impair its prospects for survival by insulating itself from reasonable fears of collective disintegration. While it is true that the fear of death must

be tempered in both individual and national drives lest it create paralysis, to deny the effect of such fear altogether is to make the threat of extinction *more imminent*.

Arms Control Is Possible

The fourth principal assumption of current U.S. nuclear strategy is that such a strategy can be undertaken without compromising the prospects for vertical and horizontal arms control. Yet, it is clear that the countervailing nuclear strategy requires supporting strategic weapons systems which must preclude any Soviet-American SALT accord. And since such an accord and progress beyond is essential to the success of the nonproliferation regime, this strategy also contributes to the spread of nuclear weapons to other countries.

According to the terms of the Treaty on the Nonproliferation of Nuclear Weapons, the superpowers are obligated to move expeditiously toward meaningful arms control and disarmament. In the words of Article VI:

> Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.

In the absence of U.S. compliance with Article VI, it is difficult to imagine that non-nuclear weapon states will continue their restricted condition indefinitely. This point is supported by the results of the latest NPT review conference, which ended in September 1980 after developing countries accused the superpowers of failing to reduce their strategic arsenals.[71] Should the United States proceed with its countervailing nuclear strategy, the prospects for negotiated arms limitation with the Soviet Union would be greatly diminished. The resultant increase in nuclear weapon states would not only create new opportunities for nuclear conflict, but would also heighten the probability of a Soviet-American nuclear war. This is the case because of the increased likelihood of catalytic war (war provoked by a new nuclear power), war between new nuclear powers with alliance or interest ties to the superpowers, and nuclear terrorism.

On July 16, 1981, President Reagan formally announced his Administration's policy on limiting the spread of nuclear weapons.[72] While designed to correct the "false impression" that the Reagan Administration is not strongly committed to nonproliferation objectives, the statement did nothing to indicate U.S. support for Article VI of the NPT. Indeed, the President's stated commitment to "Strive to reduce the motivation for acquiring nuclear explosives by working to improve regional and global

stability and to promote understanding of the legitimate security concerns of other states" could be read as a thinly-veiled reaffirmation of U.S. reliance on theater nuclear forces. Such reliance, of course, is not only needlessly provocative to the Soviet Union, it is fundamentally inconsistent with the requirements of superpower arms control.

Without a serious and explicit commitment to the imperatives of Article VI, the Reagan Administration's policy on nonproliferation is destined to fail. To create such a commitment, there must take place a basic transformation of the flawed notion that arms control can wait until we achieve a "position of strength." And there must take place a reversal of the idea that there is no urgency about arms control. Hopefully these changes have already been set in motion by President Reagan's November 18 proposal that Soviet-American talks on reducing long-range strategic missiles and bombers begin "as soon as possible" next year. To symbolize his newly-stated hopes for major "qualitative and quantitative progress," the President's proposal calls for a renaming of SALT to START, Strategic Arms Reduction Talks.

The underlying rationale of current U.S. nuclear strategy can be summed up as follows: In a world system that lacks government, right is coincident with power. Therefore, each state must do what it can to strengthen its relative power position. Indeed, in a world situation of "all against all," each state is obligated to pursue national goals on a competitive basis, and to continually strive for maximum strength and influence.

The problem with this "realist" kind of thinking (an international relations legacy from Thucydides to Morgenthau and beyond) is that it is strikingly unrealistic. It generates a spiraling pattern of fear and mistrust which progressively inhibits opportunities for general cooperation, freezes hostilities into fixed and intransigent camps, and ultimately explodes into general warfare. At the same time, this fear and mistrust "feeds back" to world leaders and reinforces the commitment to a "get what you can" philosophy of international conduct. All in all, "realism" is an uncanny formula for global catastrophe.

The militaristic nations in world politics coexist in the manner of a group of herdsmen who share a common pasture and who feel it advantageous to increase the size of their respective herds. Although these herdsmen have calculated that it is in their own best interests to continuously enlarge their herds, they have calculated incorrectly. They have done so because they have failed to consider the *cumulative effect* of their calculations which is an overgrazed commons and economic ruin.

In the fashion of the herdsmen in this analogy, the Reagan Administration continues to act as if the security of the United States is coincident with continued increases in strategic military forces. Like the herdsmen, the failure of the Administration to understand the cumulative effects of its

reasoning leads this country farther and farther away from the intended condition (in this case, of real security). Its search for an improved strategic power position vis-a-vis the Soviet Union will inevitably generate Soviet countermoves that nullify any force "improvements," and inhibit any remaining opportunities for essential cooperation. Since the Soviet Union will never "stand still" for the United States and allow it to achieve its current strategic objectives, the Reagan Administration will *never* be prepared for genuine arms reductions. By arming for arms control, the United States will inevitably make arms control impossible.

Before current U.S. nuclear strategy can be rendered compatible with the imperatives of superpower arms control and nonproliferation, the Reagan Administration must abandon its planned deployment of strategic weapons with hard-target kill capabilities. As has already been noted, Trident II and MX could put a large portion of Soviet fixed ICBMs at risk. According to the U.S. Arms Control and Disarmament Agency, "This could have significant destabilizing effects, and thus a potential negative arms control impact."[73]

Moreover, the Administration must carefully avoid taking any measures that could lead to renunciation of the ABM Treaty. In this connection, there is a real danger that the United States may seek to protect its MX forces by the deployment of a Ballistic Missile Defense System. Should such deployment take place, the resultant ABM Treaty termination would be widely interpreted as U.S. violation of Article VI of the NPT. It follows that such deployment would be injurious to a sound U.S. nonproliferation policy.

Such deployment would also degrade the stability of deterrence between the superpowers by generating a parallel Soviet deployment of BMD systems. This would in turn generate a mutual search for new offensive missile capabilities. Taken together, such developments would heighten each side's fear of a first strike by the other, and would undermine any remaining prospects for the negotiation of a strategic arms control agreement.

The failure of the Reagan administration to seriously pursue the SALT/START process would have additional corrosive effects on superpower arms control efforts. One such effect might be the end of negotiations on long-range theater nuclear forces in Europe. As a recently issued report by The Committee for National Security points out, "The abandonment of the SALT II process would make it impossible to proceed with such negotiations. There is no purpose in trying to negotiate limits on Soviet medium and intermediate range missiles if the Soviets are free to deploy as many ICBMs as they wish and target them against Western Europe."[74]

Another such effect would be the end of negotiations to bar testing and deployment of anti-satellite weapons systems. Without a new SALT/START agreement, ASAT competition would undoubtedly continue, thereby heightening tensions and first-strike fears. The resultant space weapons race

would produce increased temptations to each side to preempt since destruction of certain satellite capabilities would leave the victim nation "blind."

As we have seen, current U.S. nuclear strategy cannot be reconciled with the requirements of strategic arms control and nonproliferation. To satisfy these requirements, thereby enhancing the prospects of nuclear war avoidance, the Reagan Administration must take immediate steps to forswear nuclear weapons programs and associated policies that generate fear and insecurity in the Soviet Union and elsewhere. Concurrent with these steps, the Administration should begin a process of restoring the entire arms control agenda to a serious position of primacy in superpower strategic relations.[75] For this process to transpire, Mr. Reagan and Secretary Haig should begin to recognize that the adversary relationship between the United States and the Soviet Union must not be modeled after the conflict between the Archangels Michael and Lucifer. Rather than continue to base U.S. foreign policy on a Manichean view of good versus evil, the Administration must learn to build upon the understanding that the adversaries share a joint and irreversible commitment to the avoidance of nuclear war.

Nuclear Deterrence Can Work Forever

The fifth major assumption of current U.S. nuclear strategy is that peace can be maintained indefinitely via nuclear deterrence. Lacking any really insightful plan for more enduring patterns of world order reform, this strategy is content with perpetuating a system of "deadly logic" that cannot possibly last out the century. At one time or another, in one way or another, the manifestly catastrophic possibilities that now lie latent in nuclear weapons are almost certain to occur, either by design or by accident, by misinformation or miscalculation, by lapse from rational decision or by unauthorized decision. Such an occurrence cannot be prevented merely by the kind of strategic fine-tuning described in President Reagan's November 18, 1981 proposal to the Soviet Union.

Despite the successful workings of nuclear deterrence thus far,[76] a nuclear war between the superpowers could come to pass in several ways. It might come about inadvertently through the outcome of competition in risk-taking. It might begin by the seizure of nuclear weapons by allied countries. It might be provoked by a smaller power (catalytic war) or by war between smaller powers.

Or it might take place because of errors in calculating the outcomes of various anticipated courses of action. It might even take place as a consequence of irrationality, through use by unauthorized personnel, or by

mechanical/electrical/computer malfunction. This last possibility is especially disturbing. Several false alarms of Soviet nuclear attack have in fact already occurred over the past few years as a result of mechanical errors. After one of these occasions, on November 9, 1979, the official Soviet press agency, Tass, criticized the error and warned that another such episode could have "irreparable consequences for the whole world."[77]

The Soviets may have good reason to be concerned. In the United States, the record of publicly reported false warnings spans at least two decades.[78] In addition, Pentagon tests of its multi-billion dollar World Wide Military Command and Control System—the computer nerve center of the entire United States military apparatus—indicate intolerable shortcomings. A recent test of WWMCCS in Spring 1977, called PRIME TARGET, linked up computers in the U.S. Atlantic Command (LANTCOM), European Command (EUCOM), Readiness Command (REDCOM), Tactical Air Command (TAC), and the National Military Command Center. Overall, the computers failed 62 percent of the time.[79]

It should not be assumed that only the United States is subject to false warnings and communications failures that might lead to nuclear war. The Soviets, too, depend upon highly complex warning systems and command and control systems that are subject to failure. It is very likely that their systems have experienced the same sorts of breakdowns over the years as our own. The difference is that we do not learn of their problems in the newspapers.

The idea that a nuclear war might begin by accident has been with us for some time. In the popular novel and movie, *Fail Safe*, a U.S. nuclear attack on the Soviet Union is triggered by a "statistically impossible" double mechanical failure that sends this country's bombers to Moscow. While the story does play fast and loose with the actual facts of U.S. command and control, it does point correctly to the inherent and unavoidable risks involved in mechanical and electronic systems—risks that may be heightened rather than lowered by the piling of one system upon another. (At least one NORAD false warning was allegedly set off by the deterioration of a forty-seven cent computer chip.)

The malfunction of nuclear weapon systems must also be considered from the standpoint of nuclear weapon accidents which, although they have no bearing upon the problem of accidental nuclear war between the superpowers, may nonetheless have catastrophic effects. In this connection, one must look at the U.S. record of accidents involving nuclear weapons, at least as far as that record is known. According to the Department of Defense: "There has been a total of 33 accidents involving U.S. nuclear weapons throughout the period that the U.S. has had these weapons," although none has resulted in a nuclear detonation.[80]

The Center for Defense Information, a respected research institute in Washington, D.C., however, reports that there is evidence of many other nuclear weapon accidents that have gone unreported or unconfirmed. In the words of the Center publication, *The Defense Monitor*, "Serious students of the problem estimate that an average of one U.S. nuclear accident has occurred every year since 1945, with some estimating as many as thirty major nuclear accidents and 250 'minor' nuclear accidents during that time."[81]

Yet, this does not suggest that each of the superpowers is failing to take precautions against the accidental use of nuclear weapons. While very little is known about the Soviet Union in this regard, the United States Department of Defense has adopted measures to avert the accidental use of nuclear weapons by U.S. forces.[82] The principal steps taken include strict custodial control of these weapons and a considerable array of redundant safety features. These features are incorporated into the chain of command and into the weapons themselves. Where they concern the chain of command, these features are highlighted by the so-called "Two Man Concept," whereby no single individual has the ability to fire nuclear weapons; by a control system whereby each individual with a nuclear weapons responsibility has been formally certified under the "Human Reliability Program"; and by the use of "secure codes."

Where they concern the weapons themselves, these features emphasize "highly secure coded locking devices." Moreover, although the exact release procedures for nuclear weapons are highly classified, it is known that safeguards against accidental nuclear firings do vary somewhat from one weapon system to another. For example, all tactical nuclear weapons that are deployed overseas include mechanical or electrical devices which prevent their firing in the absence of a specially coded signal issued by higher command. Strategic nuclear weapons under U.S. Air Force jurisdiction incorporate somewhat different sorts of command/control devices that nonetheless serve the same purpose as those associated with tactical nuclear forces. Additionally, all U.S. nuclear weapons—tactical and strategic—incorporate some sort of "environmental sensing device" that is designed to prevent unwanted detonations. These include switches that respond to acceleration, deceleration, altitude, spin, gravity, and thermal forces.

While the weapons engineers and the military authorities must be commended for the fact that none of the nuclear weapon accidents has produced a nuclear explosion, it would be the height of folly to assume that we can avoid accidental nuclear war or nuclear weapon accidents indefinitely. This is to say nothing of the Soviet system of "positive control" or the Soviet system of safeguards about which we know so little. For example, exactly how strict and how reliable is the Soviet system of codes and communications? What sorts of safety devices are built into the Soviet

weapons themselves? What kind of "Human Reliability Program" is operative among Soviet personnel who deal with nuclear weapons? What sorts of redundancies are built into Soviet command/control procedures for nuclear weapons expenditure? Do these procedures include an alternative national military command center as well as a network of airborne command posts to provide reliability? What is the Soviet safety record concerning accidents involving nuclear weapons?

The threat of accidental nuclear war between the United States and the Soviet Union is aggravated by the command and control systems of other nuclear powers, both those systems already in existence (especially China and India) and those systems of countries soon to join the "nuclear club." Since other nuclear powers will have great difficulty in protecting their nuclear forces from first-strike attack, they will almost certainly turn to the deployment of nuclear weapons with automatic systems of nuclear retaliation (based upon the processing of electronic warnings by computer) and to the pre-delegation of launch authority. The resultant conditions are certain to pose grave hazards to everyone.

The spread of such conditions would affect the likelihood of nuclear war between the United States and the Soviet Union. There are at least two reasons for this: First, the generally greater likelihood of nuclear war associated with relaxed command and control over nuclear weapons implies a general increase in the number of conflicts which might involve superpower participation. This is especially true if the initial nuclear conflict were to involve an ally of one or both of the superpowers. Second, with the steady increase in the number of nuclear powers, it is conceivable that a new nuclear power could launch its nuclear weapons against one or the other superpower without the victim knowing for certain where the attack originated. In the event that the victim were to conclude that the attack came from the other superpower, a full-scale nuclear war between the United States and the Soviet Union might ensue. In such a case, the new nuclear power—possibly as a result of its own inadequate system of command and control—will have "catalyzed" nuclear war between the superpowers.

Regrettably, little can be done about the flaws in the systems of command and control of nuclear weapons. The essential "fault" lies not with these systems, but with the underlying strategy of peace through nuclear deterrence. The implementation of even more stringent measures to prevent the accidental use of nuclear weapons would in most cases impair the credibility of a country's nuclear deterrence position. As long as nations continue to base their hopes for peace and security on the ability to deliver overwhelming nuclear destruction to an aggressor, the risk of accidental nuclear war and of other nuclear weapon accidents will simply have to be endured.

The ingredients of a credible deterrence posture are exceedingly complex. Such a posture requires a state to successfully persuade would-be aggressors that it possesses the ability and the resolve to respond with unacceptably damaging retaliation. This is no mean feat. In terms of *ability*, it means being judged capable of withstanding a first-strike attack and of penetrating the would-be attacker's active defenses with unacceptable levels of destruction. In terms of *resolve*, it means being judged willing to actually deliver the promised reprisal. There is little reason to believe that all states are likely to meet these requirements even in the short-run, let alone indefinitely.

Moreover, the presumed rationality upon which deterrence rests is itself very doubtful. The actual behavior of national decision-makers is obviously not always rational. Even if we could believe that it is, this would say nothing about the accuracy of the information used in rational calculations. Rationality refers only to the intention of maximizing specified values or preferences. It does not tell us anything about whether the information used is correct or incorrect. Hence, rational actors may make errors in calculation which lead them to nuclear war and destruction.

It is also worth noting that the ability to make rational decisions in world politics is frequently undercut by the consequences of crisis and stress. Even national leaders who deliberately gear their decisions toward the preservation of the state may actually precipitate contrary effects. This might be the result of errors in information or faulty calculations engendered by stress-warping of perception and alertness. In the post-Watergate era in U.S. politics, one can only speculate how close a President of the United States may have already come to experiencing the level of emotional strain required to upset rational decision-making in world politics.

The myth that nuclear deterrence can work indefinitely between the superpowers also contributes to the proliferation of nuclear weapons to other countries. Consequently, as long as this myth is sustained by current U.S. nuclear strategy, this country's security will be further eroded by the additional dangers of nuclear weapons spread. By failing to live up to the requirements of Article VI of the NPT, the United States will encourage the appearance of new nuclear weapons states that will quickly engage in qualitative and quantitative nuclear arms races of their own. The net effect of such arms races can only be a greatly heightened risk of nuclear war, for the superpowers and for every other state. Consider the following:

—The expanded number of nuclear powers would weaken the idea of a stable "balance of terror" in world politics. There would simply be too many "players," too much ambiguity, for any sense of "balance" to be meaningful.

—The expanded number of nuclear powers would further shatter the

symmetry of strategic doctrine between nuclear weapons states. Some of the new nuclear powers would shape their strategies along the lines of "minimum deterrence" or "assured destruction" capabilities. Others would seek more ambitious objectives, including a "nuclear warfighting" or "counterforce" capability. As a result, nuclear weapons might quickly lose their already precarious image as instruments of deterrence, a situation that would surely be accelerated by the first actual use of nuclear weapons by a secondary nuclear power. If, for example, the nuclear "firebreak" were crossed in the Middle East, whether by Israel or by an Arab state, other pairs of antagonistic states would be more likely to "think about the unthinkable." A ripple effect would begin to be evident, with perhaps Libya contemplating preemption against Egypt, or Iran thinking seriously about a nuclear strike against Iraq.

—The expanded number of nuclear powers would ultimately create the conditions whereby first-strike attacks could be unleashed with impunity, whatever the condition of the intended victim's willingness to retaliate or the security of its retaliatory forces. This is the case because in a world of many nuclear powers, it would become possible for a nuclear-armed aggressor to launch its weapons against another state without being identified. Unable to know for certain where the attack originated, the victim state might lash out blindly. In the resulting conflagration, a worldwide nuclear war enveloping even the superpowers might ensue.

—The expanded number of nuclear powers would create the conditions for a "chain reaction" of nuclear exchanges. Even before it becomes possible to launch a nuclear strike anonymously, a strategic exchange might take place between two or more new nuclear weapons states that are members of opposing alliances. Ultimately, if the parties to such a clash involve clients of either or both superpowers, the ensuing chain reaction might consume the United States and the Soviet Union along with much of the rest of the world.

—The expanded number of nuclear powers would create the conditions whereby "microproliferation"—the spread of nuclear weapons capabilities to insurgent groups—might be accelerated. A possible outcome of such microproliferation might be not only nuclear terrorism, but also an anonymous terrorist detonation that could be mistakenly blamed upon another state by the attack victim. In this way, microproliferation could actually spark regional or systemwide nuclear war between states.

—The expanded number of nuclear powers would create major asymmetries in power between rival states. Where one rival would find itself in possession of nuclear weapons, and another rival would be denied such possession, the new nuclear state might find itself with an overwhelming

incentive to strike. The cumulative effect of such inequalities of power created by the uneven spread of nuclear weapons would be an elevated probability of nuclear aggression against non-nuclear states.

Reducing the Nuclear Danger

As related by Albert Camus, the gods had condemned Sisyphus to ceaselessly rolling a rock to the top of a mountain, whence the stone would fall back of its own weight. By imposing this judgment they had understood that there can be no more dreadful punishment than futile and hopeless labor. In the fashion of Sisyphus, the United States continues to labor for security by wedding its nuclear strategy to a set of policies and plans that is predestined to fail. Unlike Sisyphus, however, the United States can avoid this invidious fate.

As has been suggested, the primary arena of nuclear war avoidance is *intra*national. Understood in terms of reversing America's current nuclear strategy, this means a rapid and far-reaching disengagement from developing patterns of counterforce targeting and from preparations for nuclear warfighting. It is only when such disengagement is complete that a viable arms control and disarmament agenda for the 1980's can be implemented. Hence, it is only in the aftermath of such disengagement that we can expect genuine movement to an improved world order.

To accomplish the necessary revisions in U.S. nuclear strategy, the Reagan Administration must move immediately to restore the relatively safe principles of minimum deterrence. The overriding objective of such a move must be to reduce Soviet fears of a U.S. first-strike while preserving the survivability of this country's strategic forces. This objective can be served by abandoning plans for deployment of nuclear weapons with hard-target kill capabilities; abandoning plans for any ICBM basing mode that assumes deployment of a ballistic missile defense system; abandoning plans for civil defense and crisis relocation of civilian populations; and abandoning plans for deliberate attacks on Soviet command, control, and communication (C^3) facilities.

With such stabilizing moves underway, the superpowers could begin to make progress toward a new SALT/START accord, which in turn would allow for negotiated limitations on long-range theater nuclear forces in Europe and on ASAT weapons systems. Moreover, the realization of a new SALT/START agreement would further the objectives of the Limited Test Ban Treaty and the Nuclear Nonproliferation Treaty.

The ultimate objective of SALT/START must be a follow-on agreement wherein both sides undertake substantial reductions in strategic forces.

Before this objective can be realized, the above moves toward minimum deterrence must be augmented by a Comprehensive Test Ban Treaty (CTB), by a joint renunciation of the right to "first-use" of nuclear weapons, and by the progressive implementation of nuclear-weapon free zones.

Comprehensive Test Ban

Only a comprehensive test ban can genuinely inhibit further nuclear weapons innovations. A goal first outlined in the late 1950s, CTB should include all nuclear weapons states and the largest possible number of non-nuclear weapons states. Even if France and China, however, initially chose to remain outside such an agreement (neither France nor China has ratified the Partial Test Ban Treaty of 1963), CTB's prospective benefits are apt to be considerable enough to warrant endorsement. Understood in terms of the superpower responsibility to make nuclear war-avoidance credible in a world of self-assertive states, CTB could offer a critical starting point for wider imitation and reciprocity.

Both superpowers are presently on record in favor of a comprehensive test ban. Former President Carter made such a ban one of the primary objectives of his program for arms control and disarmament, and President Reagan must be discouraged from departing from this objective. Mr. Carter's feelings about CTB were announced before the United Nations on March 17, 1977, and again on October 4, 1977, when he told the General Assembly: "The time has come to end all explosions of nuclear devices, no matter what their claimed justification, peaceful or military."

It is, however, the U.S. lack of distinction between peaceful and military explosions that upsets the Soviets. Although the Soviets have recently backed off from a firm desire not to prevent peaceful nuclear explosions, they are still interested in making some allowances for PNEs in the future. Mr. Brezhnev has announced Soviet willingness to accept a moratorium on peaceful nuclear explosions in conjunction with a treaty prohibiting nuclear weapon tests, but he has tied this moratorium to a fixed period of time and to a series of continuing negotiations on the issue. An additional problem in concluding a CTB has centered on verification of compliance. This may be less an obstacle in the future as continuing improvements in seismic technology suggest that on-site inspections will become less important and that mutually acceptable procedures are well within the range of feasibility.

Properly regarded as "America's longest unfulfilled promise in the area of nuclear arms control,"[83] the Comprehensive Test Ban Treaty would commit the parties to achieve "the discontinuance of all test explosions of nuclear weapons for all time." By urging Senate ratification of two supporting

agreements, the 1974 Threshold Test Ban Treaty and the 1976 Treaty on Underground Explosions for Peaceful Purposes, the Reagan Administration would be in an improved position to resume negotiations on CTB and consequently to begin plans toward genuine denuclearization. With a CTB treaty in place, parties would be inhibited from deploying untested weapons, an inhibition that would reduce first-strike fears and further undercut arguments for counterforce weapons and policies. Moreover, CTB would strengthen and complement other arms control agreements, eliminate environmental and health hazards associated with the testing of nuclear weapons, and reduce the enormously debilitating diversion of wealth that is an integral feature of current nuclear strategy.[84]

No-First-Use Pledge

The United States and the Soviet Union must take immediate steps to renounce the first-use of nuclear weapons. Presently both countries reserve the right of "first use," although the Soviet Union has repeatedly offered to jointly renounce a first-use option. Clearly, the U.S. interest in retaining a first-use option seems greater than that of the Soviets. This greater commitment to first use stems from U.S. fears of conventional force inferiority in vital theaters of possible engagement. Faced with growing Soviet military strength, the United States continues to base its deterrence strategy on what are believed to be appropriate responses drawn from a range of available options. In the words of former Secretary of Defense Harold Brown:

> It continues to be U.S. policy that we will resist attacks on the United States and its allies by whatever means necessary, including nuclear weapons. We have made no secret of our view that conventional forces are an essential component of the collective deterrent, and that any conventional aggression should be met initially by conventional means. We also recognize that nuclear decisions—and especially collective nuclear decisions—would be difficult and could be time-consuming, which makes strong non-nuclear capabilities all the more important. But the United States remains determined to do whatever is required to prevent the defeat of its own and allied forces. Our strategic and theater nuclear forces serve as the ultimate backup to our NATO commitments. Not only do they provide the means to strike NATO-related targets; they also dramatize to a potential attacker that any conventional attack could set off a chain of nuclear escalation, the consequences of which would be incalculable.[85]

But why, we might ask, should the U.S. policy of first-use appear threatening to the Soviets? After all, it has always been the official policy of the United States not to launch a nuclear strike as an initial, offensive move of war. Is there anything provocative about a nuclear strategy that does not exclude the *retaliatory* use of nuclear weapons to stave off defeat in a conventional conflict?

The answer to this question lies in the fact that, in actual state practice, the distinctions between the "first-use" of nuclear weapons and a nuclear "first-strike" are apt to prove meaningless. Once a U.S. adversary had committed an act of aggression, the United States would certainly characterize any intended nuclear response as a "first use" rather than as a "first strike." Since the determination that an act of aggression had taken place would necessarily be made by the United States rather than by some specially-constituted central arbiter, it follows that certain acts that are judged to be aggressive by the United States might warrant U.S. nuclear response.

But doesn't the arbitrariness of the first use-first strike distinction apply equally to the Soviet strategy of first-use? Isn't that strategy as threatening to us as ours is to them? The answer to this question, I believe, is clearly "no," since the asymmetry in conventional forces between the two superpowers provides the Soviet Union with little real incentive to initiate escalation to nuclear conflict.

Taken together with the consequences of this country's conventional force inferiority, the U.S. policy of first use is especially unsettling to the Soviet Union since it is a policy that (1) allows for rapid escalation to nuclear conflict; (2) allows for the possibility of disguising a "first strike" as a "first use" either by deliberately creating conditions which lead to acts of "aggression" or by falsely alleging that such acts have actually taken place; and (3) joins with a targeting doctrine that focuses on Soviet strategic forces.

Hence, the U.S. policy of "first use" offers incentives to the Soviet Union to undertake a preemptive nuclear strike against the United States. Moreover, this policy creates incentives for *other* nuclear powers to adopt "hair trigger" strategies for protection against possible preemptive strikes. These risks are incurred by the United States with little real benefit in terms of deterrence, since as we have already seen any U.S. nuclear retaliation (including enhanced radiation weapons) would almost certainly draw a Soviet nuclear response. In view of the enormously high probability of Soviet nuclear counter-retaliation and the terrible destruction that would be visited upon allies "in order to save them," Soviet strategists must entertain grave doubts about U.S. willingness to use theater nuclear forces. Indeed, in the aftermath of an overwhelming Soviet conventional assault against U.S. allies, it could conceivably be more rational for this country's national command authority to by-pass theater nuclear forces altogether, urging instead the immediate resort to a strategic strike.

With these facts in mind, it should be clear that both the United States and the Soviet Union would stand to gain from a joint renunciation of the first-use option. To allow for such a renunciation, the United States must abandon production of the neutron bomb,[86] discontinue NATO plans for the modernization of intermediate-range nuclear weapons in Western Europe,

redeploy theater nuclear forces away from frontiers, and—ultimately—remove these forces altogether. These steps, of course, must be accompanied by significant efforts to strengthen U.S. and allied conventional forces in order to preserve a sufficiently high nuclear threshold.[87] For its part, the Soviet Union must take parallel steps to accept far-reaching curbs on its own theater-nuclear weapons delivery capability and on its conventional forces in Europe.

However "risky" U.S. cooperation might appear, it would be considerably less dangerous than continuing on the present course. Current United States reliance on theater nuclear deterrence heightens the chances for nuclear war without providing credible deterrence against Soviet conventional attack. The supposedly "toughminded" argument that increased Soviet adventurism and offensive strategic policy need to be countered by a parallel U.S. response is devoid of logical consistency and offers a prescription for increasing instability. Understood in terms of careful cost/benefit calculations instead of the inflamed rhetoric of political oratory, the U.S. imperative points unambiguously to taking the necessary steps to implement a no-first-use pledge. Only through such steps can this country hope to curb the Soviet theater nuclear weapons delivery capability.

Nuclear Weapon Free Zones

The superpowers must also take further steps toward wider arrangements for nuclear weapon free zones. The concept of such zones has already received international legal expression in the Treaty for the Prohibition of Nuclear Weapons in Latin America (The Treaty of Tlatelolco), which entered into force on April 22, 1968, and the two additional Protocols to the Treaty. Unlike two earlier treaties which seek to limit the spread of nuclear weapons into areas yet to be contaminated—the Antarctic Treaty of 1961 and the Outer Space Treaty of 1967—the Latin American Treaty concerns a populated area. The terms of the Treaty include measures to prevent the type of deployment of nuclear weapons that led to the Cuban missile crisis, methods of verification by both the parties themselves and by their own regional organization, and International Atomic Energy Agency (IAEA) safeguards on all nuclear materials and facilities under the jurisdiction of the parties.

The potential value of nuclear weapon free zones has been underscored several times by the United Nations. In its resolution of December 11, 1975 (3472 B: XXX), the General Assembly stated that "nuclear weapon free zones constitute one of the most effective means for preventing the proliferation, both horizontal and vertical, of nuclear weapons and for contributing to the elimination of the danger of nuclear holocaust."

Subsequently, on June 30, 1978, the General Assembly, in the Programme of Action adopted by consensus at its Special Session devoted to disarmament, proclaimed that "the process of establishing such zones in different parts of the world should be encouraged with the ultimate objective of achieving a world entirely free of nuclear weapons."[35]

The Soviet Union has recently shown a promising interest in enlarging the scope of the nuclear-weapons free zone idea. On June 27, 1981, President Brezhnev offered Nordic nations a guarantee against Soviet nuclear attack in exchange for their creation of a Northern European nuclear-free zone. This idea,which was first advanced 20 years ago by Finland, which borders the Soviet Kola Peninsula, could be accomplished by concluding either a multilateral agreement or by bilateral agreements with each of the states participating in the zone. According to Brezhnev, since nuclear weapons have not yet been deployed in northern Europe, a nuclear-weapon free zone in the region could "seal and legally formalize" the area's non-nuclear status.

An even more recent initiative on nuclear weapon free-zones has been taken by the United States. On August 13, 1981, Eugene V. Rostow, the new Director of the U.S. Arms Control and Disarmament Agency, announced that this country has begun to seek an accord to keep the Middle East free of nuclear weapons. Although he insisted that no specific plan has yet been formulated, the idea will be to pattern it after the Treaty of Tlatelolco.[36]

Taken together with other non-proliferation efforts, especially the NPT, the International Nuclear Fuel Cycle Evaluation (INFCE), and the safeguard activities of the International Atomic Energy Agency (IAEA), nuclear-weapon-free-zones warrant serious attention by the superpowers. Although Soviet support for these zones in certain regions seems aimed largely at reducing the U.S. nuclear presence, it is by no means clear that such reductions would give military or political advantage to the Soviets. Indeed, in view of what has already been said about the dangers and unreliability of theater nuclear deterrence, the overall security effect of such U.S. reductions would almost certainly be gainful for the United States. Moreover, by limiting the importance of nuclear weapons through support for CTB, no first-use pledges, and nuclear-weapon free zones, the superpowers could offer the non-nuclear weapons states a significant incentive not to proliferate.

Conclusion

As stated earlier, nuclear deterrence cannot work forever. We must eventually replace it with a more secure and rational security system, and the sooner the better. We must recognize, however, that nuclear disarmament

cannot simply be wished into being. Rather it must be accomplished incrementally. For disarmament to work, it is not enough that states prefer the conditions of a disarmed world to those of the present. Before states will calculate that the prospective benefits of disarmament exceed the prospective costs, they will have to believe that their own willingness to disarm will be generally enough reciprocated by certain other states. In the absence of such a belief, they will calculate that disarmament is more costly than gainful.

Disarmament, therefore, is a particular instance of the general problem of ensuring an adequate supply of collective goods. As long as each state lacks assurances about the reciprocal behavior of other states, it is apt to calculate that security can be more gainfully maximized privately than cooperatively. For each state to calculate otherwise, it would need strong assurances that a sufficient number of other states will abide by the cooperative search for security.

The problem is illustrated nicely by Rousseau's parable of the stag hunt in *A Discourse on the Origin of Inequality*. In this little tale, five hungry men agree to cooperate in a stag hunt. But as a hare happens to cross the path of one of them during the hunt, he grabs it. In so doing, the stag is left to escape and the would-be fruits of cooperation are lost to the other hunters.

As in Rousseau's parable, states are always tempted to "grab for the hare" (expand relative military power position) in the search for security. Hence, the more satisfactory condition of disarmament (the stag in Rousseau's parable) is allowed to get away. And it is permitted to get away even though every state might agree that security would be obtained more satisfactorily in a disarmed world than in the present competitive one.

To change these conditions such that states will come to expect far reaching compliance with disarmament obligations, significant improvements in world politics must first be realized. Disarmament cannot be seriously pursued amidst the precarious cross-currents of international belligerence and mistrust. The basis for any improvements in world politics must be the cosmopolitan understanding that all states, like all people, form one essential body and one true community. Such an understanding, that a latent oneness lies buried beneath the manifold divisions of our fractionalized world, need not be based on the mythical attractions of universal brotherhood and mutual concern. Instead, it must be based on the idea that individual states, however much they may dislike each other, are tied together in the struggle for survival. In this connection, rational decision-makers must learn that the allegedly realistic approach to security is actually unrealistic, and that long-term security via deterrence is a contradiction in terms.

In recognition that these long term improvements will be slow and painful, our immediate objective should be the achievement of a more harmonious nuclear regime, one founded on the kinds of strategic revisions and arms

control agreements just discussed. With the appearance of such a regime, the SALT/START process could proceed to the negotiation of actual reductions in strategic forces, and meaningful disarmament negotiations could be extended on a fully multilateral basis.

However urgent it is to get underway with what has come to be known as "real reductions" in strategic forces, it would be a serious error to seek these reductions prematurely. As revealed by the unsuccessful Vance mission to Moscow in 1977,[90] an improved nuclear regime must be constructed incrementally. While it would be a monumental error to abandon disarmament for less ambitious arms control remedies, it would be just as debilitating to seek disarmament before such remedies are in place. Before states can be expected to trust that disarmament measures will be generally enough respected, they will require antecedent assurances of strategic cooperation and good will. In this connection, the recent US decisions to sell lethal weapons to China and to produce neutron weapons are manifestly counterproductive.

It is with this understanding that one must be skeptical of the recent proposals by George F. Kennan for a 50 percent reduction in U.S. and Soviet nuclear arsenals.[91] While Kennan's proposal flows from an acute awareness of the terrible urgency of planetary danger, and while it has been instrumental in catalyzing public concern over this danger, the proposal itself offers little hope for real progress. Although the situation is certainly as desperate as Kennan suggests, there is little reason to believe that the superpowers can move from *realpolitik* to substantial reductions overnight. Before any disarmament proposals can be implemented, there must take place a full-fledged transformation of current U.S. nuclear strategy. Such transformation is the essential primary arena of nuclear war avoidance. However slow and painstaking it might be to accomplish, it cannot be bypassed.

Even these incremental steps, however, will require unprecedented public support and pressure. As Robert Johansen has correctly written, "To move toward a more appropriate security system we must first understand that most major governments, if left to their own pursuits, will not lead the way to a better security system."[92] Before the progressive elimination of nuclear weapons can take place, citizens of our planet must begin to prevail upon their governments to retreat from the chimera of relative advantage through nuclear arms. Understood in terms of the need to reverse current U.S. nuclear strategy, this suggests an enlarged chorus of conscious and conscientious voices urging rapid movement toward minimum deterrence, a comprehensive test ban, joint renunciation of the right to "first use" of nuclear weapons, and additional nuclear weapon free zones. It also suggests serious and far-reaching encouragement of a joint U.S.-U.S.S.R. freeze on

all further testing, production and deployment of nuclear weapons and of missiles and new aircraft designed primarily to deliver nuclear weapons. Since much of the American peace movement has been campaigning for such a nuclear arms freeze for more than a year, the freeze strategy represents a uniquely favorable point of convergence between European and American constituencies for nuclear war avoidance.

A suitable model for American imitation is the European nuclear disarmament movement, which has already begun to affect the politics of Great Britain, West Germany, Scandinavia and the Benelux countries. Urging loyalty to neither "East" nor "West," but to the common concerns of human survival, the END campaign has initiated a transcontinental movement for the expulsion of nuclear weapons and bases from European soil and territorial waters. In the months and years ahead, it is highly likely that the campaign will significantly influence the decisional calculi of European leaders, occasioning the only real opportunities for a working peace system in the area.[93]

Of course, the United States is not Europe, and it is not altogether likely that citizens in this country could soon hope to reproduce the anti-nuclear war sentiments of their counterparts across the Atlantic. In the Netherlands and in West Germany, single anti-nuclear war demonstrations in recent months have drawn more than 400,000 and 250,000 protesters respectively. In Britain, a major political party (the Labor party, the main opposition party) is committed to policies of unilateral nuclear disarmament and to prohibiting the introduction of cruise missiles. As E. P. Thompson, the distinguished social historian and writer, put it recently in an essay on the British anti-nuclear movement and the danger of nuclear war: "What bothers me now, as a frequent visitor to the States, is that the Atlantic seems to be growing wider, even though it now takes only some six hours to cross."[94]

Comparable sentiments seem markedly absent on this side of the Atlantic. But the *possibilities* for parallel anti-nuclear war movements are present. They are, of course, dormant during the early days of the Reagan Administration, but their opportunity for emergence may soon make its appearance. The reentry into British political life of the old C.N.D. (Campaign for Nuclear Disarmament) signals an awakening of concern that cannot be ignored much longer by Americans. In a short while, Thompson's prescription for nuclear war avoidance will gain adherents in this country as well.

What is this prescription? According to Thompson, "We must protest if we are to survive. Protest is the only realistic form of civil defense."[95] What sort of protest does he have in mind?

> We must generate an alternative logic, an opposition at every level of society. This opposition must be international and it must win the support of multitudes. It must bring its influence to

bear upon the rulers of the world. It must act, in very different conditions, within each national state, and, on occasion, it must directly confront its own national state apparatus.[96]

As Jean Genet suggests in *The Thief's Journal*, we live in fear of metamorphoses. E. P. Thompson pleads that we liberate ourselves from such fear lest we capitulate to unprecedented barbarism and despair. To accomplish such liberation, citizens of the United States must replicate and enlarge the social movement against nuclear weapons and nuclear war that already exists in Europe.[97]

NOTES

[1]P.D. 59 was signed by President Carter on July 25, 1980, and was then clarified by former Secretary of Defense Harold Brown in a speech at the Naval War College on August 20, 1980. The Reagan Administration's "countervailing" nuclear strategy actually goes beyond P.D. 59 principles in its advocacy of "atomic superiority" and its overriding commitment to build a capacity to fight nuclear wars at any level. At present, the essential elements of this strategy are embedded in Secretary of Defense Weinberger's "comprehensive proposal" to expand United States strategic nuclear forces so that they might meet the requirements of nuclear warfighting, and in Secretary Weinberger's report, *Soviet Military Power*, Department of Defense, U.S. Government, October 1981, 99 pp.

[2]Sloss, "Carter's Nuclear Policy: Going From Mad to Worse?" "No: It's Evolutionary, Not Revolutionary, and Aims to Strengthen Deterrence," *Los Angeles Times*, August 31, 1980, p. 3 (emphasis in original).

[3]See *New York Times*, January 13, 1954, p. 2.

[4]Mutual Assured Destruction (MAD) is a condition wherein each adversary possesses the ability to inflict an unacceptable degree of damage upon the other after absorbing a first strike.

[5]See Harold Brown, Remarks delivered at the Convocation Ceremonies for the 97th Naval War College Class, Naval War College, Newport, Rhode Island, August 20, 1980, p. 6.

[6]*Ibid.*, p. 7.

[7]*Department of Defense Annual Report for FY 1981* (Washington, D.C.: 1980), p. 66.

[8]See Henry Kissinger, *Nuclear Weapons and Foreign Policy* (Garden City, New York: Doubleday and Co., 1957), p. 15.

[9]*Ibid.*, p. 166.

[10]See *Analyses of Effects of Limited Nuclear Warfare*, a report prepared for the Subcommittee on Arms Control, International Organizations, and Security Agreements of the Committee on Foreign Relations, U.S. Senate, September 1975, p. 4.

[11]*Ibid.*, p. 5.

[12]See Opening Statement by Senator Case to Hearing before the Subcommittee on Arms Control, International Organizations, and Security Agreements of the Committee on Foreign Relations, United States Senate, on "Possible Effects on U.S. Society of Nuclear Attacks Against U.S. Military Installations," September 18, 1975, p. 3.

[13]See Dr. Drell's testimony of September 18, 1975, at Hearing, *Ibid.*, p. 21.

[14]This assessment, which was endorsed by Vice President Bush during the presidential election campaign and is now embedded in Secretary Weinberger's "comprehensive proposal," is now seen almost regularly in the journal and popular literature. See, for example, Leon Sloss's comment that, "All the evidence suggests that we confront an adversary who appears to believe it is possible to fight and win a nuclear war." (Commentary on article by this writer, "Presidential Directive 59: A Critical Assessment," *Parameters*, Vol. XI, No. 1., March 1981, pp. 19-28, appearing in *Parameters*, Vol. XI, No. 2., June 1981, p. 90. Mr. Sloss, now with SRI International, directed the nuclear targeting policy review for the Department of Defense in 1978). See also Richard Pipes, "Why the Soviet Union Thinks It Could Fight and Win a Nuclear War," *Commentary*, Vol. 64, No. 1., July 1977; and Gray and Payne, "Victory Is Possible," *Foreign Policy*. No. 39, Summer 1980, pp. 14-27.

[15]See Carl von Clausewitz, *On War*, Book VIII, Chapter 6B, "War Is An Instrument of Policy," (Princeton: Princeton University Press, 1976).

[16]See Michael E. Howard, "On Fighting a Nuclear War," *International Security*, Vol. 5, No. 4, Spring 1981, p. 9.

[17]See Kissinger's Introduction to his edited book of readings, *Problems of National Strategy* (New York: Praeger, 1965), p. 6.

[18]Cited by Drell in his testimony, f.n. 13, p. 19.

[19]See Rumsfeld, *Annual Report of the Department of Defense for 1978*, U.S. Government, Washington, D.C., p. 73.

[20]See, for example, "Soviet Charges Reiterated," *The New York Times*, August 21, 1980, p. A8.

[21]*Ibid.* According to Vladimir Goncharov, a political analyst for Tass, there is no doubt that this indeed is the U.S. intention.

[22]Little has happened since General Ellis's statement to suggest pertinent force improvements. See Drew Middleton, "SAC Chief is Critical of Carter's New Nuclear Plan," *The New York Times*, September 7, 1980, p. 19.

[23]Writing in response to an article by this writer in a recent issue of *Parameters: The Journal of the U.S. Army War College* ("Presidential Directive 59: A Critical Assessment," f.n. 14), Gray observed: "So far as physical assets are concerned, PD 59 cannot be implemented with current forces and C ³I capabilities. Even if there were no reason to question the merit of the strategic vision in PD 59, the fact remains that the United States is the better part of a decade away from a matching force posture."

[24]U.S. launch-under-attack policies appear to be taken very seriously by the Reagan Administration. Earlier receptivity to such policies was announced by former Defense Secretary Brown: "The question is, would you launch land-based missiles before explosion of nuclear weapons on the United States? It is not our doctrine to do so—neither is it our doctrine that under no circumstances would we ever do so." See Brown, "Launch on Warning or Launch Under Attack?" *Defense/Space Daily*, November 11, 1977, p. 68; cited by John M. Collins, *U.S.-Soviet Military Balance: Concepts and Capabilities 1960-1980*. (New York: McGraw Hill, 1980), p. 129n.

[25]See Collins, f.n. 24, p. 129.

[26]See *Aviation Week and Space Technology*, Vol. 112, No. 24, June 16, 1980, pp. 60-61.

[27]See Herman Kahn, *On Escalation: Metaphors and Scenarios* (New York: Praeger, 1965), p. 10.

[28]*Ibid.*, p. 12.

[29]See Edward Rowny, "That 'New' Nuclear Strategy," *The Washington Post*, August 25, 1980, p. 19.

[30]See Brown, *Annual Report of the Department of Defense for FY 1981*, U.S. Government, Washington, D.C., p. 67.

[31]For a sound, critical analysis of the planned NATO deployment of intermediate-range nuclear weapons, see Kevin N. Lewis, "Intermediate Range Nuclear Weapons," *Scientific American*, Vol. 243, No. 6., December 1980, pp. 63-73.

[32]See the section on "Long-Range Theater Nuclear Missile Systems and the Sea-Launched Cruise Missile," in *Fiscal Year 1982 Arms Control Impact Statements*. Submitted to the Congress by the President, U.S. Government, Washington, D.C., February 1981, pp. 200-238. Statements prepared by the U.S. Arms Control and Disarmament Agency.

[33]*Ibid.*, p. 230. The ACDA report also points out that a hazard of planned deployments includes a negative impact on the prospects for arms control.

[34]These weapons would produce the bulk of their damage by a flood of neutrons rather than through heat or concussive force.

[35]See John F. Kennedy, *The Strategy of Peace* (New York: Harper and Row, 1960), p. 185.

[36]See *The Defense Monitor*, Vol. 4., No. 2., February 1975, p. 3.

[37]*Ibid.*

[38]See, for example, the previously cited writings of Gray and Payne, Sloss, and Pipes as well as the recently-articulated policies of Eugene Rostow at ACDA and Caspar Weinberger at Defense.

[39]See Brown, Remarks at the Naval War College, f.n. 5, p. 6.

[40]See the previously cited reactions of Colin Gray and Leon Sloss to this writer's article on P. D. 59 in *Parameters*.

[41]In this connection, special attention should be given to Charles E. Osgood's very promising GRIT (Graduated and Reciprocated Initiatives in Tension-reduction) strategy. For information on this strategy, see Osgood's "Psycho-Social Dynamics and the Prospects for Mankind," presented to the Peace Science Society (International) in 1977 and to a U.N. Colloquium in 1978; and his "The GRIT Strategy," *The Bulletin of the Atomic Scientists*, Vol. 36., No. 5., May 1980, pp. 58-60.

[42]According to an assessment offered by the U.S. Arms Control and Disarmament Agency: "The MK-12A RV was designed to be employed against the total spectrum of targets but increasingly has been planned for employment against a growing Soviet hardened target system, where its combination of yield and accuracy could be used to military advantage. Although the MM III in its current configuration is effective to some degree against hard targets, improved accuracies which may accrue as a result of the guidance improvement program and the higher yield of the MK-12A (W78) warhead would increase this capacity." See *Fiscal Year 1982 Arms Control Impact Statements*, February 1981, p. 3.

[43]See Jeffrey T. Richelson, "The Dilemmas of Counterpower Targeting," *Comparative Strategy*, Vol. 2., No. 3., 1980, pp. 226-227.

[44]See, for example, the published concerns of CINCSAC General Richard Ellis, in Drew Middleton, "SAC Chief is Critical of Carter's New Nuclear Plan," *The New York Times*, September 7, 1980, p. 19.

[45]See Physicians for Social Responsibility, *PSR Newsletter*, Vol. II, No. 2., Summer 1981, p. 2.

[46]*Ibid.*

[47]See for example, *Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings*, by the Committee for the Compilation of Materials on Damage Caused by the Atomic Bombs in Hiroshima and Nagasaki (New York: Basic Books, 1981, 706 pp); Ruth Adams and Susan Cullen, eds., *The Final Epidemic: Physicians and Scientists on Nuclear War* (Chicago: Educational Foundation for Nuclear Science, Inc., 1981); Arthur M. Katz, *Life After*

Nuclear War (Cambridge, MA, Ballinger, 1981, 452 pp); "The First Nuclear War Conference," December 7, 1978, a special report of *The Bulletin of the Atomic Scientists*, Chicago, 1979, 43 pp; *Analyses of Effects of Limited Nuclear Warfare*, a report prepared for the Subcommittee on Arms Control, International Organizations, and Security Agreements of the Committee on Foreign Relations, United States Senate, September 1975, 156 pp: *Worldwide Effects of Nuclear War. . . Some Perspectives*, a report of the U.S. Arms Control and Disarmament Agency (not dated, but produced after 1975) 24 pp; *Long-Term Worldwide Effects of Multiple Nuclear-Weapons Detonations*, a report by the Committee to Study the Long-Term Worldwide Effects of Multiple Nuclear-Weapons Detonations, National Academy of Sciences, Washington, D.C., 1975, 212 pp; *The Effects of Nuclear War*, a report by the Office of Technology Assessment, U.S. Congress, Washington, D.C., May 1979, 151 pp; *Economic and Social Consequences of Nuclear Attacks on the United States*, a study prepared for the Joint Committee on Defense Production, Congress of the United States, published by the Committee on Banking, Housing, and Urban Affairs, United States Senate, Washington, D.C., March 1979, 150 pp; Kevin N. Lewis, "The Prompt and Delayed Effects of Nuclear War," *Scientific American*, Vol. 241, No. 1, July 1979, pp. 35-47; Bernard Feld, "The Consequences of Nuclear War," *The Bulletin of the Atomic Scientists*, Vol. 32, No. 6, June 1976, pp. 10-13; Louis Rene Beres, *Apocalypse; Nuclear Catastrophe in World Politics* (Chicago and London: The University of Chicago Press, 1980), 315 pp; *The Effects of Nuclear War*, a report by the U.S. Arms Control and Disarmament Agency, Washington, D.C., April 1979, 26 pp; Bennett Ramberg, *Destruction of Nuclear Energy Facilities in War* (Lexington, MA: Lexington Books, 1980), 203 pp; Michael E. Howard, "On Fighting a Nuclear War," *International Security*, Vol. 5, No. 4., Spring 1981, pp. 3-17; Ruth Leger Sivard, *World Military and Social Expenditures 1980* (Leesburg, Virginia: Arms Control Association, et. al., 1980), 35 pp; Franklyn Griffiths and John C. Polanyi, eds., *The Dangers of Nuclear War* (Toronto: The University of Toronto Press, 1979), 197 pp; *U.S. Urban Population Vulnerability*, a report by the U.S. Arms Control and Disarmament Agency, Washington, D.C., August 1979, 50 pp; Sidney D. Drell, "The Effect of Nuclear Weapons and Nuclear War on Civilians," a talk presented at the Symposium on the Effects of Nuclear War sponsored by the Physicians for Social Responsibility and the Council for a Livable World, Herbst Theater, San Francisco, November 17, 1980, 12 pp; E. P. Thompson, "A Letter to America," *The Nation*, Vol. 232, No. 3., January 24, 1981, pp. 68-93; Kevin N. Lewis, "Intermediate-Range Nuclear Weapons," *Scientific American*, Vol. 243, No. 6., December 1980, pp. 63-73; George B. Kistiakowsky, *Can a Limited Nuclear War be Won? The Defense Monitor*, Center for Defense Information, Vol. X, No. 2., Washington, D.C., 1979, 8 pp; *The Race to Nuclear War: Three Statements, The Defense Monitor*, Vol. IX, No. 6., Washington, D.C., 1980, 8 pp; *War Without Winners, The Defense Monitor*, Vol. VIII, No. 2., Washington, D.C., 1979, 8 pp; and the several conferences sponsored by Physicians for Social Responsibility on *The Medical Consequences of Nuclear Weapons and Nuclear War*. A full report of the physicians' campaign to prevent nuclear war is contained in *The Bulletin of the Atomic Scientists*, Vol. 37, No. 6., June/July 1981, 65 pp.

[16]See Gray and Payne, "Victory Is Possible," *Foreign Policy*, No. 39, Summer 1980, p. 14.

[17]*Ibid.*, p. 19. This search for strategic superiority is, of course, an integral part of the Reagan Administration's nuclear strategy.

[18]*Ibid.*, p. 25.

[19]See "An Open Letter to President Carter and Chairman Brezhnev," Physicians For Social Responsibility, Inc., *PSR Newsletter*, Vol. 1., No. 2., April 1980, p. 1. This letter is a summary for informed laypersons of more technical studies undertaken by Physicians For Social Responsibility. These studies are the product of a series of symposia sponsored by PSR and affiliated groups on the subject of "The Medical Consequences of Nuclear Weapons and Nuclear War." Recent symposia were held in San Francisco (November 17-18 1980) and Chicago

(June 19-20 1981). Similarly, scholarly studies of the effects of nuclear war have been undertaken by International Physicians For The Prevention of Nuclear War, a group of prominent physicians modeled after the Pugwash Movement. The June/July 1981 issue of *The Bulletin of the Atomic Scientists* (Vol. 37, No. 6) is dedicated entirely to the writings of the international community of physicians on nuclear war, the ultimate medical emergency. See also, Ruth Adams and Susan Cullen, eds., *The Final Epidemic: Physicians and Scientists on Nuclear War* (Chicago, Educational Foundation for Nuclear Science, Inc., 1981).

[52]See Robert Jay Lifton and Eric Olson, *Living and Dying* (New York: Praeger, 1974), p. 129.

[53]See Tom Stonier, *Nuclear Disaster* (New York: Meridian, 1964), p. 24.

[54]*Ibid.*

[55]This testimony, offered on June 19, 1980, is cited in "The Race to Nuclear War," *The Defense Monitor*, Center for Defense Information, Washington, D.C., Vol. IX, No. 6., 1980, 8 pp.

[56]See Dr. Handler's letter of transmittal, which is contained at the beginning of the report.

[57]*Ibid.*

[58]This point has aroused considerable controversy, causing the Federation of American Scientists to charge NAS with having reached a "false conclusion."

[59]See *Worldwide Effects of Nuclear War... Some Perspectives*, A report of the U.S. Arms Control and Disarmament Agency, not dated, but produced after the 1975 NAS report, pp. 23-24.

[60]See No. OTA-NS-89, Washington, D.C.

[61]*Ibid.*, p. 3.

[62]See *Scientific American*, Vol. 241, No. 1., July 1979, p. 35.

[63]*Ibid.*, p. 47.

[64]See Bernard Brodie, ed., *The Absolute Weapon* (New York: Harcourt, Brace, 1946), p. 76.

[65]See the discussion of this principle in Sheldon S. Wolin, *Politics and Vision: Continuity and Innovation in Western Political Thought* (Boston: Little, Brown, 1960), pp. 195-238.

[66]See *Discourses*, I, cited by Wolin, f.n. 65, p. 221.

[67]See *Discourses*, II, cited by Wolin, f.n. 65, p. 222.

[68]See Hannah Arendt, *On Violence* (New York: Harcourt, Brace, 1970), p. 3.

[69]*Ibid.*, pp. 4-5.

[70]See Henry Kissinger, *The Necessity for Choice: Prospects of American Foreign Policy* (Garden City: New York, Doubleday, Anchor, 1962), p. 12.

[71]See "1980 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons," ACDA Special Report, November 1980, 14 pp.

[72]See "Reagan's Statement On Nuclear Weapons," *The New York Times*, July 17, 1981, p. 6.

[73]See *Fiscal Year 1982 Arms Control Impact Statements*, f.n. 32, p. VIII.

[74]See *An Arms Control Agenda For The Eighties*, The Committee for National Security, 1742 N Street, N.W., Washington, D.C., June 30, 1981, p. 10. This writer is one of the authors of the CNS report.

[75]In this connection, a clear difference in priorities is evident between the Carter and Reagan Administrations. The difference is elucidated by a comparison of the positions of former Secretary of State Muskie and Secretary Haig. Speaking before the Senate Foreign Relations Committee on September 16, 1980 on "U.S. Nuclear Strategy," Muskie emphasized that "American nuclear strategy should be fully consistent with our arms control objectives, so that we preserve the opportunities to strengthen security and stability by means of equitable and

verifiable arms control agreements." (See U.S. Department of State, Bureau of Public Affairs, *Current Policy*, No. 219, p. 1.) More recently, in an address before the Foreign Policy Association in New York on July 14, 1981, Secretary Haig stated, "...arms control can only be one element in a comprehensive structure of defense and foreign policy designed to reduce the risks of war. It cannot be the political centerpiece or the crucial barometer of U.S.-Soviet relationships....Arms control proposals should be designed in the context of the security situation we face, our military needs, and our defense strategy. Arms control should complement military programs in meeting these needs." (See U.S. Department of State, Bureau of Public Affairs, "Arms Control for the 1980's: An American Policy," *Current Policy*, No. 292, p. 2.)

[9]In this connection, "successful" is defined very narrowly in terms of the avoidance of nuclear war. Where the workings of nuclear deterrence are considered more broadly in terms of effects on day-to-day life under the threat of nuclear annihilation, however, they can hardly be termed "successful." For example, the prevailing system of "deadly logic" has had terribly corrosive effects on ordinary human feelings of care and compassion. In the United States, small but growing bands of Americans dubbed "survivalists" are arming themselves and learning how to kill in a post-apocalypse milieu. Going far beyond the self-help aspect of the bomb shelter movement of the 1950s and '60s, this retreat to medieval thinking entails a heightened form of social-darwinism, a generally-accepted willingness to kill neighbors to survive. As one survivalist in northern Georgia put it recently, "If there is a nuclear war, I hope everyone in the cities is killed. I don't want them coming out afterwards expecting me to feed them or to take what I've got."

Another frequently overlooked cost of nuclear deterrence is the accumulation of vast quantities of nuclear waste. Up till now, 99% by volume of all high-level nuclear wastes (the most radioactive) in the United States has come from military activities. Since nuclear wastes can be dangerous to humans not only through direct contact, but also by getting into water supplies or the food chain of plants and animals that we eat, this cost of nuclear deterrence cannot be taken lightly. Indeed, even if all nuclear reactors were shut down today and not another hydrogen bomb produced, we would still have a mountain of nuclear wastes that could seriously imperil future generations. (See "Military Nuclear Wastes: The Hidden Burden of the Nuclear Arms Race," *The Defense Monitor*, Center For Defense Information, Washington, D.C., Vol. X., No. 1., 1981.)

A far more widely understood cost of nuclear deterrence is, of course, the economic deterioration and social unrest brought by steadily rising military expenditures. Most importantly, perhaps, military spending is uniquely inflationary. While the Reagan Administration's widely touted budget cuts are intended to create expectations of success in fighting inflation, its expanded military spending will overheat the economy by generating more spendable income than goods and services to absorb it. This spending will also have a depressing effect on investment, which will in turn thwart economic growth and prolong inflationary pressures. Moreover, it will create a distinct government-dependent sector characterized by rapid obsolescence and product change, unstable markets, excessive waste endemic to large bureaucracies beyond public control, cost-plus pricing and reduced pressures for management efficiency.

In the final analysis, the essential human costs of military spending associated with the dead-end search for protracted nuclear deterrence are vast unmet needs for income, education, health, nutrition and housing. In the words of the distinguished economist, Ruth Leger Sivard, "In short, what the arms race means in human terms is that more people are condemned to die of hunger and of foul water; children to grow up retarded in body and mind; the special needs of the elderly to be neglected; people to live out their lives in fear and with hate." (See *World Military and Social Expenditures 1980*, World Priorities, Leesburg, Virginia, 1980, p. 18.) For

more information on the debilitating economic effects of the arms race, see John Kenneth Galbraith, "The Economics of the Arms Race and After," *East/West Outlook*, American Committee on East-West Accord, Vol. 4., No. 2., May-June 1981; Admiral Gene R. LaRocque, "We Spend Too Much on Defense," *The New York Times*, February 1, 1981, p. F3; Wassily Leontief, "Big Boosts in Defense Risk 'Economic Calamity,'" An interview with the Nobel-Prize winning economist in *U.S. News and World Report*, 1981, reprinted by The Committee for National Security; and Seymour Melman, "Beating 'Swords' Into Subways," *The New York Times Magazine*, November 19, 1978, p. 43.

[11]In this connection, we might note that the recent Titan missile accident in the United States can hardly be reassuring to the Soviets.

[12]See Lloyd J. Dumas, "National Insecurity in the Nuclear Age," *The Bulletin of the Atomic Scientists*, Vol. 32., No. 5., May 1976, pp. 28-29.

[13]See this writer's article prepared for the Independent News Alliance (INA) in July 1980, "Flaws in Systems of Command and Control: Nuclear War by Accident."

[14]From U.S. Department of Defense undated press release sent to the author by W. Y. Smith, Lieutenant General, USAF, and Assistant to the Chairman, Joint Chiefs of Staff, June 16, 1976.

[15]See *The Defense Monitor*, Vol. 4., No. 2., February 1975, p. 9.

[16]See U.S. Department of Defense, Directive No. 5030.15, *Safety Studies and Reviews of Nuclear Weapons System*, August 8, 1974, pp. 3-4.

[17]See the White Paper by The Committee for National Security, *An Arms Control Agenda for the Eighties*, Washington, D.C., June 30, 1981.

[18]*Ibid.*, pp. 13-16.

[19]See Harold Brown, *Department of Defense Annual Report For FY 1979*, U. S. Government, Washington, D.C., February 2, 1978, p. 68.

[20]In the aftermath of President Reagan's announcement to embark upon production and stockpiling of the neutron bomb, no adequate explanation has been offered of the manner in which such enchanced radiation weapons can actually improve nuclear deterrence. In fact, such weapons can only enhance deterrence if the Soviet Union believes American leadership to be *irrational*. This is the case because the first use of neutron weapons by the United States would carry a very high probability of unacceptably damaging nuclear counter-retaliation by the Soviet Union. Should the Soviet leadership actually display this belief, then it would be decidedly irrational for them to initiate conventional conflict. Rather, the requirements of rational action would compel them to use nuclear weapons in any initial offensive move of war against an ally of the United States. It follows that the decision to produce the neutron bomb is, like all other associated elements of American nuclear strategy, entirely counterproductive to the security interests of the United States.

There are those who will argue that an American neutron bomb can enhance Western deterrence even if the Soviet leadership believes its American counterparts to be rational. This argument is founded upon the presumption that in the Soviet view American leaders do not believe that their first-use of neutron weapons would draw a Soviet nuclear response. Yet, in view of all that is known about current Soviet nuclear strategy, there is no reason whatever to accept this presumption. However, even if Soviet leaders believe that their American counterparts are rational but foolhardy, i.e., subject to unusual risk-taking behavior, they will still be confronted with conditions that encourage Soviet nuclear first-use. It follows that even if we accept the presumption that the Soviet leadership perceives the American National Command Authority to be rational, the deployment of the neutron bomb by the United States would carry high costs and no benefits.

Of course, the dangers of the neutron bomb stem not only from Soviet perceptions of its

hazards, but also from the object of these perceptions, i.e., American nuclear strategy. Since the United States may believe that the first-use of neutron weapons would entail a lower risk of escalation than other theater nuclear forces, it is more likely to initiate nuclear conflict because of these weapons. This heightened willingness to cross the "firebreak" between conventional and nuclear conflict greatly increases the likelihood of all-out nuclear war.

[9]The need for such efforts is acknowledged by the authors of a recent report by the Directors of Forschungsinstitut der Deutschen Gessellschaft fur Auswartige Politik (Bonn); Council on Foreign Relations (New York); Institut Francais des Relations Internationales (Paris); and Royal Institute of International Affairs (London). See Karl Kaiser, Winston Lord, Thierry De Montbrial, and David Watt, *Western Security: What Has Changed? What Should Be Done?*, New York and London, 1981, p. 27.

[10]See Alfonso Garcia Robles, "The Latin American Nuclear Weapon Free Zone," The Stanley Foundation, Occasional Paper 19, May 1979, Muscatine, Iowa, p. 20.

[11]See Bernard Gwertzman, "U.S. Starts Seeking Mideast Atom Ban," *The New York Times*, August 14, 1981, p. 1.

[12]Early in 1977, the Carter Administration undertook a detailed interagency review of unresolved SALT issues. In the hope of reaching significant strategic arms limitations, Secretary of State Vance and Ambassador Warnke presented a comprehensive proposal to the Soviet Union in March 1977 that called for major cuts in the Vladivostok ceilings, as well as limits on the number of land-based ICBMs equipped with MIRVs and the number of very large, or "heavy," ICBMs. The proposal, which also called for restrictive limits on the testing and deployment of new types of ICBMs, was rejected by the Soviets, as was an alternate deferral proposal under which the SALT II agreement would be based upon the Vladivostok numbers. In the Soviet view, both proposals were inconsistent with the agreement at Vladivostok.

[13]See address by George F. Kennan on the occasion of his receiving the Albert Einstein Peace Prize, May 19, 1981, *East/West Outlook*, The American Committee on East-West Accord, Vol. 4., No. 3., July/August 1981, p. 4. Mr. Kennan's proposal can also be found in *The New York Review of Books*, Vol. XXVIII, No. 12., July 16, 1981, pp. 14-16.

[14]See Robert C. Johansen, *Toward A Dependable Peace: A Proposal for an Appropriate Security System*, Working Paper No. 8., World Order Models Project, p. 21.

[15]See "The END Campaign," in *The Bulletin of the Atomic Scientists*, Vol. 36., No. 10., December 1980, pp. 1, 54.

[16]See E. P. Thompson, "A Letter to America," *The Nation*, January 24, 1981, p. 68.

[17]*Ibid.*, p. 91.

[18]*Ibid.*

[19]One organization in the United States that has already responded to the imperative of intelligent social action is the Center for Defense Information in Washington, D.C. Directed by retired Navy Admiral Gene LaRocque, the CDI has produced a Nuclear War Prevention Kit, a 28-page guide to citizen action emphasizing individual, group, and community steps to survival. While this resource gives the impression of whistling in the dark in comparison to the enormity of prevailing sentiments for increasing militarism, it can—in conjunction with other well-reasoned efforts against nuclear war—provide an indispensable fulcrum for denuclearization. The Nuclear War Prevention Kit can be obtained from the Center for Defense Information, 122 Maryland Avenue, N.E., Washington, D.C. 20002.

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